**ZOLL On-Premise Server Specifications**

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# Overview

This guide provides information on server specifications for an On-Premise version of CaseReview. While it is possible to install CaseReview components on *separate* servers, this guide assumes installation of those components will take place on *one* virtual machine or physical server, processing a maximum of 10 cases per hour.  **If you anticipate more than 10 cases per hour (or over 200 cases per day) being uploaded into CaseReview, please reach out to a Sales Engineer for a deeper review of the anticipated workload to better customize the CaseReview environment.**  Larger systems will require load balancing across additional servers for proper application operation and performance.

**DefibDashboard™**
This document can be used as a baseline for installing multiple ZOLL products, such as running DefibDashboard™ and CaseReview on the same servers. However, for large environments, ZOLL Defibrillator Dashboard™ and CaseReview should have their own server installations to attain the best performance.

For more details on virtual machine requirements, please contact a ZOLL Sales Engineer.

# Hardware & Software Requirements

**CPU Speed Requirements**

ZOLL strongly recommends server systems with CPU speeds of 3.6 GHz or greater for the best possible end user experience due to the nature of the workloads being processed. Case file processing is a computationally expensive single threaded process that is not well suited to slower clock speed/higher core count systems as the operation cannot be performed in parallel over multiple cores. Selecting systems with clock speeds less than 3.6 GHz has the potential to impact end user system response times, increase case file processing times (time to case availability in CaseReview), and reduce the stated case file processing capacity of the server per hour. ZOLL will not be able to address support requests related to degraded system performance in the event slower CPUs are employed; the primary remedy is to increase the CPU clock speeds to the recommended levels. ZOLL does not support systems with clock speeds below 2.2 GHz.

### Single Machine Configuration

**Description**: This configuration runs all components and third-party software on a single machine. This is recommended for smaller customers that have little to no burst traffic (file uploads) into the system.

**Estimated Throughput:** 1 - 8 cases concurrently processing at once.

| **Component** | **Requirement** |
| --- | --- |
| **Processor** | Dual Processor with 4 core @ 3.6GHz (not exclusive) |
| **Memory** | Minimum 16GB - ZOLL recommends 24GB+  |
| **Storage (OS Disk)** | Software and website installation requires 8GB above operating systems installs and SQL Server installations. Disk I/O averages at peak traffic Read: ~1500kbWrite: ~1400kb |
| **Storage Disk** | 10GB minimum storage\***Note** – if running ZOLL Defibrillator DashboardTM in conjunction with CaseReview OnPremise, minimum storage requirement is **100GB** plus the formula below**SQL Server Requirements**Use the following to understand approximate storage requirements:d = cases per days = average case sizec = file compression rate

|  |  |
| --- | --- |
| Device | Compression Rate |
| R-Series | .6 |
| X-Services | .88 |
| AED3 | .9 |

 (d \* (s\*c)) \* 365 \* 7 = total storage cost for given device. |
| **Apache Cassandra Requirements** | Note Cassandra is used as short term storage and data has a TTL (time to live) of 3 years. TTL is configurable to the second.(d (s\*.8)) \* 1095 = total storage cost. |
| **Network** | 1Gpbs |
| **Install Account** | An admin account able to read, write, and modify files on the server |
| **Operating System** | Windows Server 2016 - 2019 (not core) with a base OS language of US English |
| **SQL Server** | SQL Server 2012 – 2019 Standard or Enterprise (not express) |
| **Other Requirements** | Windows Management Framework 5.0 (or higher).NET Framework 4.7.2 or greater |

### Standard Configuration

**Description**: This configuration runs all ZOLL Components on an application server and a MSSQL server, each on a separate machine. This is recommended for small to medium sized customers that have some burst traffic (file uploads) into the system.

**Estimated Throughput:** 8-15 cases concurrently processing at once.

**Application Server**

|  |  |
| --- | --- |
| **Component** | **Requirement** |
| **Processor** | Dual Processor with 4 core @ 3.6GHz (not exclusive) |
| **Memory** | Minimum 16GB - ZOLL recommends 24GB+  |
| **Storage (OS Disk)** | Software and website installation requires 8GB above operating systems installs and SQL Server installations. Disk I/O averages at peak traffic Read: ~1500kbWrite: ~1400kb |
| **Storage Disk** | 10GB minimum storage\***Note** – if running ZOLL Defibrillator DashboardTM in conjunction with CaseReview OnPremise, minimum storage requirement is **100GB** plus the formula below**SQL Server Requirements**Use the following to understand approximate storage requirements:d = cases per days = average case sizec = file compression rate

|  |  |
| --- | --- |
| Device | Compression Rate |
| R-Series | .6 |
| X-Services | .88 |
| AED3 | .9 |

 (d \* (s\*c)) \* 365 \* 7 = total storage cost for given device. |
| **Apache Cassandra Requirements** | Note Cassandra is used as short term storage and data has a TTL (time to live) of 3 years. TTL is configurable to the second.(d (s\*.8)) \* 1095 = total storage cost. |
| **Network** | 1Gpbs |
| **Install Account** | An admin account able to read, write, and modify files on the server |
| **Operating System** | Windows Server 2016 - 2019 (not core) with a base OS language of US English |
| **Other Requirements** | Windows Management Framework 5.0 (or higher).NET Framework 4.7.2 or greater |

**Database Server**

Please follow Microsoft’s [sizing guide](https://docs.microsoft.com/en-us/sql/sql-server/install/hardware-and-software-requirements-for-installing-sql-server-2019?view=sql-server-ver16#pmosr) and recommendations for SQL server.

**ZOLL SQL Server Requirements**

Use the following to understand approximate storage requirements:

d = cases per day

s = average case size

c = file compression rate

|  |  |
| --- | --- |
| Device | Compression Rate |
| R-Series | .6 |
| X-Services | .88 |
| AED3 | .9 |

(d \* (s\*c)) \* 365 \* 7 = total storage cost for given device.

**SQL Server 2012 – 2019 Standard or Enterprise (not express)**

### Scaled Configuration

**Description**: This configuration runs all ZOLL Components on an application server, a case file processing server, and MSSQL server on a separate machine. This is recommended for large customers that are typically hospital systems with multiple sites.

**Estimated Throughput:** 15+ cases concurrently processing at once.

**Application Server**

|  |  |
| --- | --- |
| **Component** | **Requirement** |
| **Processor** | Dual Processor with 4 core @ 3.6GHz (not exclusive) |
| **Memory** | Recommended 16GB |
| **Storage (OS Disk)** | Software and website installation requires 8GB above operating systems installs and SQL Server installations. Disk I/O averages at peak traffic Read: ~1500kbWrite: ~1400kb |
| **Storage Disk** | 10GB minimum storage\***Note** – if running ZOLL Defibrillator DashboardTM in conjunction with CaseReview OnPremise, minimum storage requirement is **100GB** plus the formula below |
| **Network** | 1Gpbs |
| **Install Account** | An admin account able to read, write, and modify files on the server |
| **Operating System** | Windows Server 2016 - 2019 (not core) with a base OS language of US English |
| **SQL Server** | SQL Server 2012 – 2019 Standard or Enterprise (not express) |
| **Other Requirements** | Windows Management Framework 5.0 (or higher).NET Framework 4.7.2 or greater |

**Database Server**

Please follow Microsoft’s [sizing guide](https://docs.microsoft.com/en-us/sql/sql-server/install/hardware-and-software-requirements-for-installing-sql-server-2019?view=sql-server-ver16#pmosr) and recommendations for SQL server.

**ZOLL SQL Server Requirements**

Use the following to understand approximate storage requirements:

d = cases per day

s = average case size

c = file compression rate

|  |  |
| --- | --- |
| Device | Compression Rate |
| R-Series | .6 |
| X-Services | .88 |
| AED3 | .9 |

(d \* (s\*c)) \* 365 \* 7 = total storage cost for given device.

**SQL Server 2012 – 2019 Standard or Enterprise (not express)**

**Processing Server**

|  |  |
| --- | --- |
| **Component** | **Requirement** |
| **Processor** | Dual Processor with 4 core @ 3.6GHz (not exclusive) |
| **Memory** | Minimum 16GB - ZOLL recommends 24GB+  |
| **Storage (OS Disk)** | Software and website installation requires 8GB above operating systems installs and SQL Server installations. Disk I/O averages at peak traffic Read: ~1500kbWrite: ~1400kb |
| **Storage Disk** | 200GB minimum storage |
| **Network** | 1Gpbs |
| **Install Account** | An admin account able to read, write, and modify files on the server |
| **Apache Cassandra Requirements** | Note Cassandra is used as short term storage and data has a TTL (time to live) of 3 years. TTL is configurable to the second.(d (s\*.8)) \* 1095 = total storage cost.\*\*Please note that total storage cost is per Cassandra node. |
| **Operating System** | Windows Server 2016 - 2019 (not core) with a base OS language of US English |
| **Other Requirements** | Windows Management Framework 5.0 (or higher).NET Framework 4.7.2 or greater |

**Load Balancer Server**

Please follow your load balancers sizing guide.

### Massive Configurations

ZOLL supports even larger scaled configurations should one of the above scenarios not accommodate your user base. Please contact your ZOLL Sales Engineer with your estimated defib case file traffic and user base size to create plan for larger, customized solutions.

# Client Configurations

**Supported browsers**: Google Chrome for desktop

**Browser requirements**: Enable Javascript and custom fonts

# Unsupported Configurations

CaseReview does not support the following configurations.

**Windows**

* FIPS-compliant settings.

**Sql Server**

* TLS connection enablement.
* Windows authentication accounts for application connectivity.