

## RescueNet ePCR Suite 6.0

### Hardware and software specifications Version 6.0

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## About this Document

This document is intended as a guide for hardware and third party software purchases for the required infrastructure to implement the RescueNet ePCR Suite in your organization. This document does NOT include requirements for any other RescueNet software packages. If you are installing RescueNet ePCR Suite along with any other RescueNet products you will also need to refer to the requirements for those other products when considering the complete requirements for your RescueNet installations.

You can get the most from your RescueNet ePCR Suite by ensuring that your hardware and software infrastructure meets or exceeds the requirements outlined in these specifications. Additionally, an infrastructure based on these specifications ensures the most cost-effective and seamless upgrade path for future expansion.

Thank you for reviewing this document. We hope that it helps ensure a successful product experience. If you have any further hardware and software specification-related questions, please contact your ZOLL Regional Manager at (800) 474-4489.

-  It is important to note that it is your responsibility to purchase, install, and license any third party software outlined in this document.
-  If you choose to deviate from our recommendations Deployment and Support will attempt to complete installations, train and troubleshoot your software issues. However, if it is determined or cannot be ruled out that your choice of hardware/software infrastructure or configuration thereof is causing problems with the ZOLL RescueNet Suite of software, ZOLL staff will not be able to assist in the correction of the problem until your environment is modified to meet the specifications outlined in this document.
-  If additional installation or training time is required as a result of issues caused by your choice of hardware/software infrastructure or configuration thereof it is your responsibility to pay for this additional time and any associated travel and expenses.

## Important Notes

**Minimum requirements:** These specifications are requirements based on best practices. If you add additional services/devices, remote users, etc. to your system, these specifications will need to be upgraded.

**Microsoft-compatible hardware:** ZOLL recommends and supports the use of Dell, IBM, Hewlett Packard / Compaq hardware. ZOLL HIGHLY recommends purchasing your equipment from one of the major manufacturers listed above. The use of "homebuilt" machines are not supported by ZOLL .

It is also important to note that ZOLL software runs on a Microsoft Windows platform and therefore Novell or any other operating system is NOT supported.

**Hardware/network installation and support:** ZOLL does not provide system hardware or network installation and support as a part of the standard deployment. We highly recommend the use of a Microsoft Certified System Engineer (MCSE) to assist with the installation, configuration, and testing of all hardware and network software including the SQL database prior to your scheduled deployment.

If you do not have access to resources to assist with this preparation ZOLL provides optional IT Consulting Services to fill this role. If you are interested in obtaining more information about this optional service please contact your sales manager or email [itservices@zolldata.com](mailto:itservices@zolldata.com) for additional details.

**Pre-installation requirement:** To maximize the benefits of your deployment, your network, Active Directory domain and domain name system (DNS) must be set up and functioning properly before RescueNet products can be installed. The use of workgroups is not supported; A Windows Active Directory domain is required for RescueNet products.

**Printers:** ZOLL recommends the use of laser printers with our products.

## Unsupported Environments

The following is a list of unsupported environments that will not support the installation of RescueNet ePCR at this time. If you have questions about any other environment options that are not listed here or are not explicitly listed as supported within this document please contact ZOLL before proceeding with any purchases/upgrades to confirm supportability.

- **High Availability (HA) / Clustered Environment** – the installation of the RescueNet ePCR Suite 5.x database and server services in a clustered environment is **NOT** recommended and will **NOT** function in this environment.
- Installation of web components on multiple servers (including Web Farms)
- Novell Network
- Microsoft Windows Vista
- Microsoft / Windows Small Business Server
- LANDesk Software
- **Domain Controllers / Active Directory Servers** - Installation of the RescueNet ePCR Suite 5.x server components on a Domain Controller and/or Active Directory Server is **NOT** recommended and will **NOT** function in this environment.
- Proxy servers

## Compatibility with other products in the RescueNet Suite

As products in the RescueNet Suite integrate with each other, ZOLL recommends that you access the most up-to-date compatibility matrix document for each product. This document contains details about the product and the versions of other RescueNet products that it is compatible with. The compatibility matrix information will no longer be included in the Hardware and Software Specifications document for the separate products.

To access the latest compatibility matrix for your product, go to [www.myzolldata.com](http://www.myzolldata.com). You can find the document under “Documentation > RescueNet Suite IT/Technology > RescueNet Products and Compatibility”

## Third Party Software

ZOLL's RescueNet suite of products requires a certain amount of third party software for a complete installation. It is the client's responsibility to obtain, license, install and configure all third party software required by the RescueNet suite of products.

- Microsoft Operating Systems
- Microsoft Active Directory
- Microsoft SQL Server
- Anti-Virus Software
- Virtualization Software
- Backup Software
- Etc.

ZOLL is not responsible for support or maintenance of any third party software used in conjunction with the RescueNet suite of products. Please ensure that you have a valid maintenance and support agreement with all third party software manufactures.

## Anti Virus software

ZOLL's quality assurance testing is performed on systems that are protected by Computer Associates eTrust and Sophos anti-virus software. With that said, we are aware that many customers are successfully using RescueNet products with other anti-virus solutions; therefore, the ZOLL Support team will support environments which are protected by any anti-virus system.

If you experience performance related issues with any of ZOLL's products and contact our Support department for assistance, the Support department may ask you to turn off the anti-virus solution for a predetermined amount of time to better understand if the anti-virus is a factor. If turning off the anti-virus software has a positive effect on the performance of your system our Support department will attempt to assist in configuring your anti-virus so as to minimize the effect. However, ultimately it is our customer's responsibility to fine tune their anti-virus solution to minimize the impact on system performance.

## Virtual Servers

ZOLL has tested and recommends the use of VMWare Virtual Servers, specifically VMWare ESX 3.5 or vSphere 4.0 Standard, Advanced, Enterprise or Enterprise Plus, for your virtualization needs. VMWare is the only virtual machine product that has been tested with the ZOLL RescueNet suite of products.

The configuration and maintenance of your virtual environment is your responsibility. You should use the server specifications contained within this document to determine what resource provisions need to be made when you implement your virtual environment. ZOLL Deployment and Technical Support will not install or configure these virtual environments on your behalf.

If you choose to deviate from our recommendation regarding the virtual environment or resource requirements for your virtual environment Deployment and Support will attempt to complete installations, train and troubleshoot your software issues. However, if it is determined or cannot be ruled out that your choice of virtual server environment or configuration of your virtual environment is causing problems with the ZOLL RescueNet Suite of software, ZOLL staff will not be able to assist in the correction of the problem until the virtual machine configuration is modified to remove limitations or is removed completely.

If additional installation or training time is required as a result of issues caused by your choice of or configuration of virtual environment it is your responsibility to pay for such time and any associated travel and expenses.

### Automated Backup solution software

It is important to understand that proper backup of your system is up to you; ZOLL does not provide your backup solution.

The information stored in your RescueNet database is critically important; therefore ZOLL strongly recommends that you implement a method to backup critical files and database archives. The RescueNet database is backed up and associated log files are archived to a specified hard disk drive location, but the hard disk drive must be in turn backed up.

It is the customer's responsibility to provide a system backup solution that will meet their individual needs. In the event that there is a disaster or other unforeseen event that requires the system to be restored, ZOLL Data support department will not be able to assist you without a good, tested and functional system backup.

### Wireless Communication Support

ZOLL supports the use of any public carrier network that is TCP/IP based for communication between TabletPCR and the ePCR Servers. We do NOT support private radio data networks.

When determining bandwidth requirements you must consider how you will use the software and your tolerance for speed of data transfer. The average size of a PCR can average between 40K and 3MB depending on what data you are capturing and if you are attaching any monitor data or other files to the PCR.

### Support Remote Access Requirements

ZOLL highly recommends a high speed connection for remote access by ZOLL Support personnel.

ZOLL supports the use of any of the following methods for remote connections to your RescueNet installation by our support professionals:

- Microsoft® RDP (Remote Desktop or Terminal Services) via public IP connection or supported VPN
- LogMeIn® support sessions (initiated by ZOLL )

- Citrix® Metaframe or Presentation server via public IP connection or supported VPN
- Cisco® Systems VPN is currently the only supported VPN connectivity to remote locations from ZOLL support department.

Other remote connection methods not explicitly mentioned above may not be supported by ZOLL. If you use another method for remote access please contact your sales manager to inquire if your method can be accommodated.

## RescueNet Code Review

If uploading medical device data from ZOLL devices, RescueNet Code Review version 5.3 is required.

### X Series

If uploading medical device data from a ZOLL X Series the following minimum firmware/software versions are required:

- MP Application: 02.01.25.0 or newer
- CP Software: 1.0.56.1980 or newer

## 1 – 50 PCR's per Day

### Multi-purpose Server

The following table represents the minimum **required** hardware specifications for a customer that will produce up to 50 PCR's per day and is not running any other RescueNet Suite software packages. If you are installing ePCR along with other RescueNet applications you will need to also consider the requirements for those applications in addition to the requirements below.

Hardware	
Processors	Intel Xeon, Quad Core Processor 2.8Ghz or higher
Memory	2 GB of RAM
Hard drives	Six (6) 73GB, 15K HDD
Hardware RAID controllers	Required. Software-based RAID is <b>not</b> supported
Network Interface Card (NIC)	100 / 1000 Mbps
Software	
Operating system	32-bit and 64-bit versions of the following: Microsoft Windows Server 2008 Microsoft Windows Server 2008 R2 Microsoft Windows Server 2012 (all above with latest Microsoft Windows service packs installed) Microsoft Windows Small Business server is <b>NOT</b> supported
.NET Framework	Version 4.0
Database management system (DBMS)	32-bit and 64-bit versions of the following: Microsoft SQL Server 2005 Standard Edition, with Service Pack 2 Microsoft SQL Server 2008 Standard Edition Microsoft SQL Server 2008 R2 Standard Edition

### **Hard drive configuration for database server for up to 50 PCR's per day**

Hard drives make up a large percentage of the performance of a SQL Server. Therefore the hard drive configuration is vitally important. For customers that will produce up to 50 PCR's per day and that are **not** running any other RescueNet products the following outline is the required hard drive configuration.

Minimum of six (6) (can contain more than six hard drives up to the capacity of the server hardware) hard drives.

- Two (2), 73GB, Raid 1 hard drives – Operating system and SQL Engine files
- Four (4), 73GB, Raid 5 hard drives – SQL data files and attachments



## 51 – 150 PCR's per Day

### Database Server

The following table represents the minimum **required** hardware specifications for the database server for a customer that will produce up to 150 PCR's per day and is not running any other RescueNet Suite software packages. If you are installing ePCR along with other RescueNet applications you will need to also consider the requirements for those applications in addition to the requirements below.

Hardware	
Processors	Intel Xeon, Quad Core Processor 2.8Ghz or higher
Memory	4 GB of RAM
Hard drives	Six (6) 146GB, 15K HDD
Hardware RAID controllers	Required. Software-based RAID is <b>not</b> supported
Network Interface Card (NIC)	100 / 1000 Mbps
Software	
Operating system	32-bit and 64-bit versions of the following: Microsoft Windows Server 2008 Microsoft Windows Server 2008 R2 Microsoft Windows Server 2012 (all above with latest Microsoft Windows service packs installed) Microsoft Windows Small Business server is <b>NOT</b> supported
.NET Framework	Version 4.0
Database management system (DBMS)	32-bit and 64-bit versions of the following: Microsoft SQL Server 2005 Standard Edition, with Service Pack 2 Microsoft SQL Server 2008 Standard Edition Microsoft SQL Server 2008 R2 Standard Edition

### **Hard drive configuration for database server for up to 150 PCR's per day**

Hard drives make up a large percentage of the performance of a SQL Server. Therefore the hard drive configuration is vitally important. For customers that will produce up to 150 PCR's per day and that are **not** running any other RescueNet products the following outline is the required hard drive configuration.

Minimum of six (6) (can contain more than six hard drives up to the capacity of the server hardware) hard drives.

- Two (2), 146GB, Raid 1 hard drives – Operating system and SQL Engine files
- Four (4), 146GB, Raid 5 hard drives – SQL data files and attachments

## Web Server

The following table represents the minimum **required** hardware specifications for the web server for a customer that will produce up to 150's PCR's per day and is not running any other RescueNet Suite software packages. If you are installing ePCR along with other RescueNet applications you will need to also consider the requirements for those applications in addition to the requirements below.

**⚠ Note:** Deploying WebPCR to the internet (outside of a secured network) will require consideration from the client's IT organization to ensure deployment of this web application meets the client's security policies for internet applications. Some common security profiles used may include, but are not limited to SSL, VPN, and DMZ implementations. It is up to the client to determine which implementation method best meets their security policies.

Hardware	
Processors	Intel Xeon, Quad Core Processor 2.8Ghz or higher
Memory	2 GB of RAM
Hard drives	Two (2) 36GB hard drives configured RAID 1
Hardware RAID controllers	Required. Software-based RAID is <b>not</b> supported
Network Interface Card (NIC)	100 / 1000 Mbps
Software	
Operating system	32-bit and 64-bit versions of the following: Microsoft Windows Server 2008 Microsoft Windows Server 2008 R2 Microsoft Windows Server 2012 (all above with latest Microsoft Windows service packs installed) Microsoft Windows Small Business server is <b>NOT</b> supported
.NET Framework	Version 4.0
Database management system (DBMS)	32-bit and 64-bit versions of the following: Microsoft SQL Server Express Edition Microsoft SQL Server 2005 Standard or Enterprise Edition, with Service Pack 2 Microsoft SQL Server 2008 Standard or Enterprise Edition Microsoft SQL Server 2008 R2 Standard or Enterprise Edition

**Hard drive configuration for the RescueNet WebPCR server**

For customers that will produce up to 150 PCR's per day and that are **not** running any other RescueNet products the following outline is the required hard drive configuration.

- Two (2) hard drives configured in RAID Level 1 (Mirrored) Configuration.
- One partition encompassing the full capacity of the RAID 1 set formatted in NTFS file system (do not use "Quick format" option)
  - Operating system and web components to reside on this partition.

**151 – 300 PCRs per Day****Database Server**

The following table represents the minimum **required** hardware specifications for the database server for a customer that will produce up to 300 PCR's per day and is not running any other RescueNet Suite software packages. If you are installing ePCR along with other RescueNet applications you will need to also consider the requirements for those applications in addition to the requirements below.

<b>Hardware</b>	
Processors	Dual Intel, Quad Core Xeon Processor 3.0Ghz or higher
Memory	4 GB of RAM
Hard drives	Eight (8) 146GB, 15K hard drives
Hardware RAID controllers	Required and must be of hardware type, software RAID is <b>not</b> supported
Network Interface Card (NIC)	100 / 1000 Mbps
<b>Software</b>	
Operating system	32-bit and 64-bit versions of the following: Microsoft Windows Server 2008 Microsoft Windows Server 2008 R2 Microsoft Windows Server 2012 (all above with latest Microsoft Windows service packs installed) Microsoft Windows Small Business server is <b>NOT</b> supported
.NET Framework	Version 4.0
Database management system (DBMS)	32-bit and 64-bit versions of the following: Microsoft SQL Server 2005 Standard Edition or Enterprise Edition, with Service Pack 2 Microsoft SQL Server 2008 Standard Edition or Enterprise Edition Microsoft SQL Server 2008 R2 Standard Edition or Enterprise Edition

**Hard drive configuration for primary database server for up to 300 PCR's per day**

Hard drives make up a large percentage of the performance of a SQL Server. Therefore the hard drive configuration is vitally important. For customers that will produce up to 300 PCR's per day and that are **not** running any other RescueNet products the following outline is the required hard drive configuration.

- Minimum of Eight (8) hard drives required for the main server
- Two (2) hard drives configured in RAID Level 1 (Mirrored) Configuration.
- One partition encompassing the full capacity of the RAID 1 set formatted in NTFS file system (do not use "Quick format" option)
- Operating system and SQL Server Engine files to reside on this set
- Minimum of six (6) (can contain more than six (6) hard drives up to the capacity of the server hardware) hard drives configured in RAID Level 5.
- One partition encompassing the full capacity of the RAID 5 set formatted with the NTFS file system (do not use "Quick format" option).
- Data files and Log files for the SQL Server databases to reside on this partition.
- No other applications or services should be run on the primary SQL Server. This server should be reserved for the exclusive of the SQL Server engine.
- Required server requirements for customers producing greater than 300 PCR's per day
- For customers producing greater than 300 PCR's per day please contact ZOLL IT consulting group for required configurations.

**Web Server**

The following table represents the minimum **required** hardware specifications for the web server for a customer that will produce up to 300's PCR's per day and is not running any other RescueNet Suite software packages. If you are installing ePCR along with other RescueNet applications you will need to also consider the requirements for those applications in addition to the requirements below.

**⚠ Note:** Deploying WebPCR to the internet (outside of a secured network) will require consideration from the client's IT organization to ensure deployment of this web application meets the client's security policies for internet applications. Some common security profiles used may include, but are not limited to SSL, VPN, and DMZ implementations. It is up to the client to determine which implementation method best meets their security policies.

Hardware	
Processors	Single Intel Quad Core Xeon Processor 3.2Ghz or higher
Memory	2 GB of RAM
Hard drives	Two (2) 73GB, 15K hard drives, configured RAID 1
Hardware RAID controllers	Required and must be of hardware type, software RAID is <b>not</b> supported
Network Interface Card (NIC)	100 / 1000 Mbps

Software	
Operating system	32-bit and 64-bit versions of the following: Microsoft Windows Server 2008 Microsoft Windows Server 2008 R2 Microsoft Windows Server 2012 (all above with latest Microsoft Windows service packs installed) Microsoft Windows Small Business server is <b>NOT</b> supported
.NET Framework	Version 4.0
Database management system (DBMS)	32-bit and 64-bit versions of the following: Microsoft SQL Server Express Edition Microsoft SQL Server 2005 Standard or Enterprise Edition, with Service Pack 2 Microsoft SQL Server 2008 Standard or Enterprise Edition Microsoft SQL Server 2008 R2 Standard or Enterprise Edition

#### **Hard drive configuration for the RescueNet Web server**

For customers that will produce up to 300 PCR's per day and that are **not** running any other RescueNet products the following outline is the required hard drive configuration.

- Two (2) hard drives configured in RAID Level 1 (Mirrored) Configuration.
- One partition encompassing the full capacity of the RAID 1 set formatted in NTFS file system (do not use "Quick format" option)
- Operating system and web components to reside on this partition.

#### **Services Server**

The following table represents the minimum **required** hardware specifications for the web server for a customer that will produce up to 300's PCR's per day and is not running any other RescueNet Suite software packages. If you are installing ePCR along with other RescueNet applications you will need to also consider the requirements for those applications in addition to the requirements below.

Hardware	
Processors	Single Intel Quad Core Xeon Processor 2.83Ghz or higher
Memory	4 GB of RAM
Hard drives	Two (2) 73GB, 15K hard drives
Hardware RAID controllers	Required; must be of hardware type, software RAID is <b>not</b> supported
Network Interface Card (NIC)	100 / 1000 Mbps
Software	
Operating system	32-bit and 64-bit versions of the following:

	Microsoft Windows Server 2008 Microsoft Windows Server 2008 R2 Microsoft Windows Server 2012 (all above with latest Microsoft Windows service packs installed) Microsoft Windows Small Business server is <b><u>NOT</u></b> supported
.NET Framework	Version 4.0
Database management system (DBMS)	32-bit and 64-bit versions of the following: Microsoft SQL Server Express Edition Microsoft SQL Server 2005 Standard or Enterprise Edition, with Service Pack 2 Microsoft SQL Server 2008 Standard or Enterprise Edition Microsoft SQL Server 2008 R2 Standard or Enterprise Edition

#### ***Hard drive configuration for the ePCR Services server***

For customers that will produce up to 300 PCR's per day and that are **not** running any other RescueNet products the following outline is the required hard drive configuration.

- Two (2) hard drives configured in RAID Level 1 (Mirrored) Configuration.
- One partition encompassing the full capacity of the RAID 1 set formatted in NTFS file system (do not use "Quick format" option)
- Operating system and web components to reside on this partition.

## Greater than 300 PCRs per Day


For customers producing more than 300 PCRs per day please contact your sales manager for a hardware recommendation tailored to your specific needs.

## RescueNet ePCR Suite Fax Server

If the *Fax Service* option will be purchased then the associated software and hardware must be available as specified below. The *Fax Service* software must be on the same network as, and be able to access, the RescueNet Database Server and the services server.

The RescueNet ePCR Suite Fax Service utilizes the Microsoft Windows Fax Services. When installing the operating system ensure that the Fax Services option is installed as well. The ePCR Fax Server does not have restrictions on the number of PCR's Faxed per day. The same specifications apply to all systems.

Hardware	
Processors	Intel P4 Processor 1.0Ghz or greater
Memory	1GB of RAM
Hard drives	1GB free space
Hardware RAID controllers	Optional
Fax Modem	Required
Network Interface Card (NIC)	100 / 1000 Mbps
Software	
Operating system	32-bit and 64-bit versions of the following: Microsoft Windows Server 2008 Microsoft Windows Server 2008 R2 Microsoft Windows Server 2012 *Windows XP Fax services only supports one modem. (all above with latest Microsoft Windows service packs installed) Microsoft Windows Small Business server is <b><u>NOT</u></b> supported
.NET Framework	Version 4.0
Other	Adobe Acrobat Reader

 Note: If you are running more than 75 faxes (not runs) per day you may consider using a multi-line fax card, such as Brooktrout ([www.cantata.com](http://www.cantata.com)).



## RescueNet Workstations

The *RescueNet Call Taking* software module is used for reviewing the data captured by TabletPCR. Workstations are used to operate the *RescueNet Call Taking* software (in addition to other applications). It is important to understand that data is *not* stored locally on the workstation; instead, it is stored on the RescueNet Database Server. This insures that all data is available to all users, and also makes backup and reporting operations more efficient.

If you are using RescueNet Dispatch and/or Billing software, then the RescueNet Dispatch and/or Billing *Call Taking* software is used for reviewing PCR data that resides in the RescueNet database.

Hardware	
Processors	Intel Pentium 4 Processor 1.8Ghz or higher
Memory	1 GB RAM
Hard drives	3 GB free space
Network Interface Card (NIC)	100 / 1000 Mbps
Software	
Operating system	Microsoft Windows 7 Professional (32-bit and 64-bit versions) Microsoft Windows 8 Professional (32-bit and 64-bit versions) (all above with latest Microsoft Windows service packs installed)
.NET Framework	Version 4.0
Other	Adobe Acrobat Reader

## RescueNet TabletPCR Mobile Computers

The following list identifies the mobile computer devices that have been used during testing of RescueNet ePCR Suite 5.4. All other mobile computer hardware devices you may choose to evaluate/use in your organization should meet the minimum requirements detailed in the table below.

### ZOLL Tested Mobile Devices

- Panasonic Toughbook CF-30
- Panasonic Toughbook CF-19

### General Device Requirements

Hardware	
Processors	1.2Ghz or higher
Memory	2 GB RAM
Hard drives	16 GB free space
Internet Connectivity	Ethernet or Wireless
Software	
Operating system	Microsoft Windows 7 Professional (32-bit & 64-bit versions) Microsoft Windows 8 Professional (32-bit and 64-bit versions) (all above with latest Microsoft Windows service packs installed)
.NET Framework	Version 4.0
Other	Adobe Acrobat Reader

## RescueNet WebPCR Browser

The following list identifies the web browsers that have been used during testing of RescueNet WebPCR 6.0.

### ZOLL Tested Browsers

- Microsoft Internet Explorer version 8
- Microsoft Internet Explorer version 9
- Microsoft Internet Explorer version 10

## Appendix A: Network Requirements

### Local Area Network Topology Requirements

ZOLL applications require a minimum 100 Mbps network. Three main components constitute a 100 Mbps network: cabling, the network interface card in your workstations and servers, and your switch.

**Cabling:** 100baseT Fast Ethernet cabling is a networking standard that supports data transfer rates of up to 100 Mbps (megabits per second). Category 5e or Category 6 certified cabling is required to run networks at speed of 100Mbps or greater.

**Network interface card:** A Network Interface Card (NIC) allows your computer to be connected to the network. When using 100 Mbps Ethernet cabling, a 100/1000Mbps NIC must be used. This allows the NIC to run at 100Mbps or 1000Mbps.

**Switches.** Switches are a fundamental part of most networks. They make it possible for several users to send information over a network at the same time without slowing each other down. A 100 Mbps switch is needed to accommodate a 100 Mbps network.

### Wide Area Network Installations

Using RescueNet products natively over a wide area network (WAN) connection is not supported with the exception of Mobile TabletPCR devices synchronizing to the synchronization server. RescueNet Products can be used in a WAN environment with the use of application servers. These servers would include Citrix Presentation Server or Microsoft Terminal Services.

It is important to consider your network topology when designing your RescueNet software infrastructure. The basic rule to follow is that if you have to install executables to the workstation the workstation needs to be on the Local Area Network (LAN) in order for the RescueNet Product that you installed to function correctly and for it to be supported.

For an example of a supported WAN installation please review [Appendix B: Sample Wide Area Network](#).

### Firewalls and Firewall Configurations

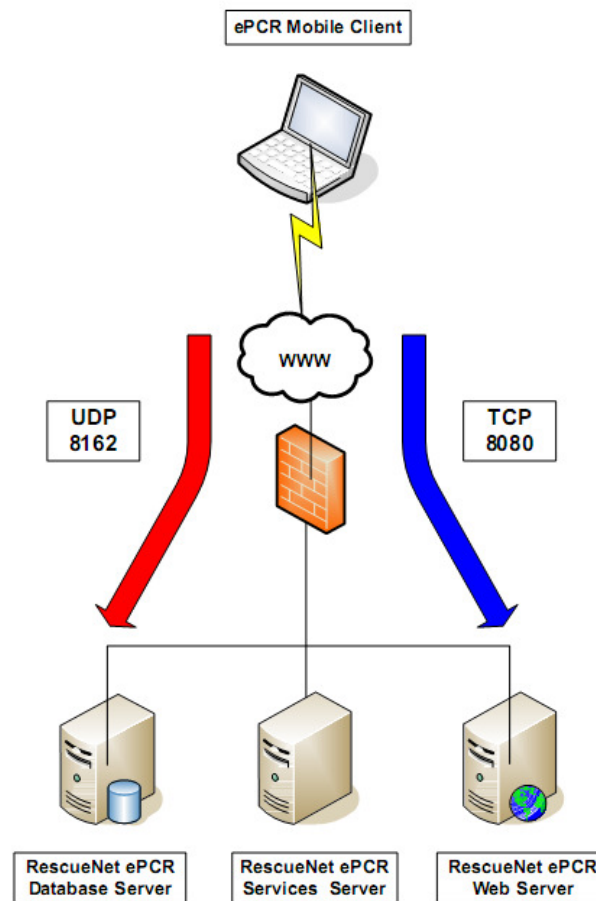
The diagram below illustrates a basic firewall placement. There are many different ways to design security for your network and many different products to use. When selecting a firewall ensure that the selection you make is a commercial firewall product and not a “for home use” or “for small office home office” use. It is important to obtain a firewall that can cope with the traffic and requirements of a high usage. Use this diagram as a baseline of the very minimal security that should be implemented along with the RescueNet ePCR Suite.

In order for the RescueNet ePCR Mobile units to synchronize data with the RescueNet Server(s) there must be a connection path set up so that data can freely pass bi-directionally. If you plan to allow your Mobile units to connect from outside of your network, then you will

need to open some ports to allow this data communication. All of the ports that are used in RescueNet ePCR are configurable. All sensitive patient and system configuration is encrypted using 128bit AES encryption.

## RescueNet ePCR Suite Network Overview

Below is a diagram of a typical basic field data network setup. In this diagram there are three components.



### **RescueNet ePCR Database Server**

The RescueNet ePCR Database Server hosts the Microsoft® SQL Server databases where the data is stored that is collected using both the Mobile Clients and WebPCR Clients. The primary broker for the messaging system integral to the RescueNet ePCR suite, (Mercury Messaging System), is also hosted on this server.

The RescueNet ePCR Database Server hardware will vary depending on the workload subjected to the server. ZOLL measures this workload as the number of runs processed through the system in one 24 hour period. It is recorded in this document as Runs per Day.

The primary database server requires Microsoft SQL Server 2005, 2008 or 2008 R2 Standard or Enterprise Edition.

#### ***RescueNet ePCR Services Server***


The RescueNet ePCR Service Server host the services that are required for the ePCR Suite. The services are responsible for the processing of all PCRs within the system including the routing of calls in the Workflow Module.

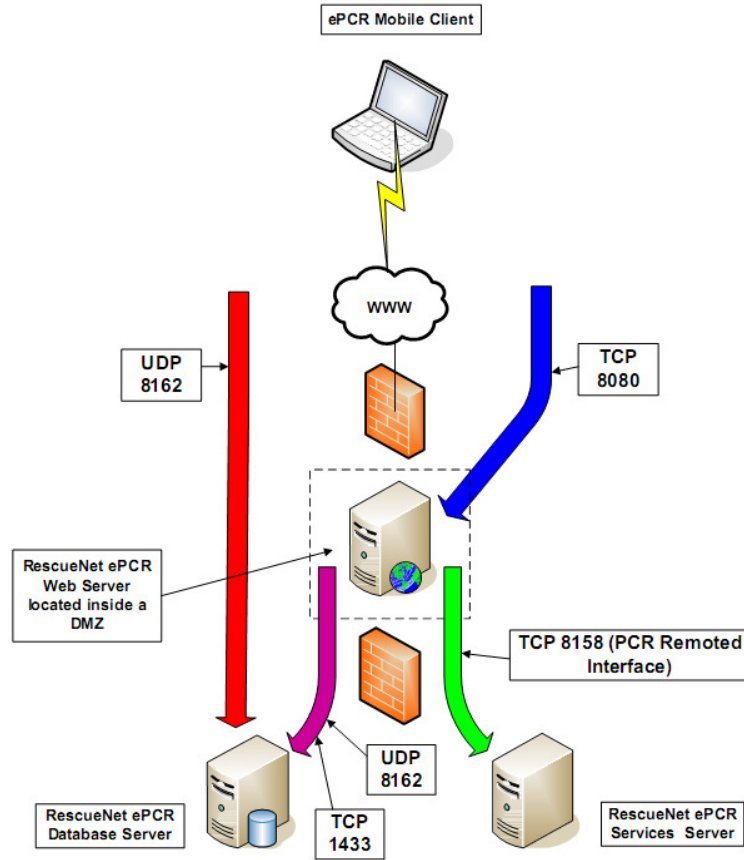
Similar to the Database Server, the hardware will vary based on the workload subjected to it and is not necessary for less than 150 runs per day.

#### ***RescueNet ePCR Web Server***

The RescueNet ePCR Web Server houses all of the Web Applications and sites that the RescueNet system uses. This includes the eDistribution download site and the WebPCR download site.

Similar to the Database Server and Services Server, the hardware will vary depending on the workload subjected to it and is not necessary for less than 150 runs per day.

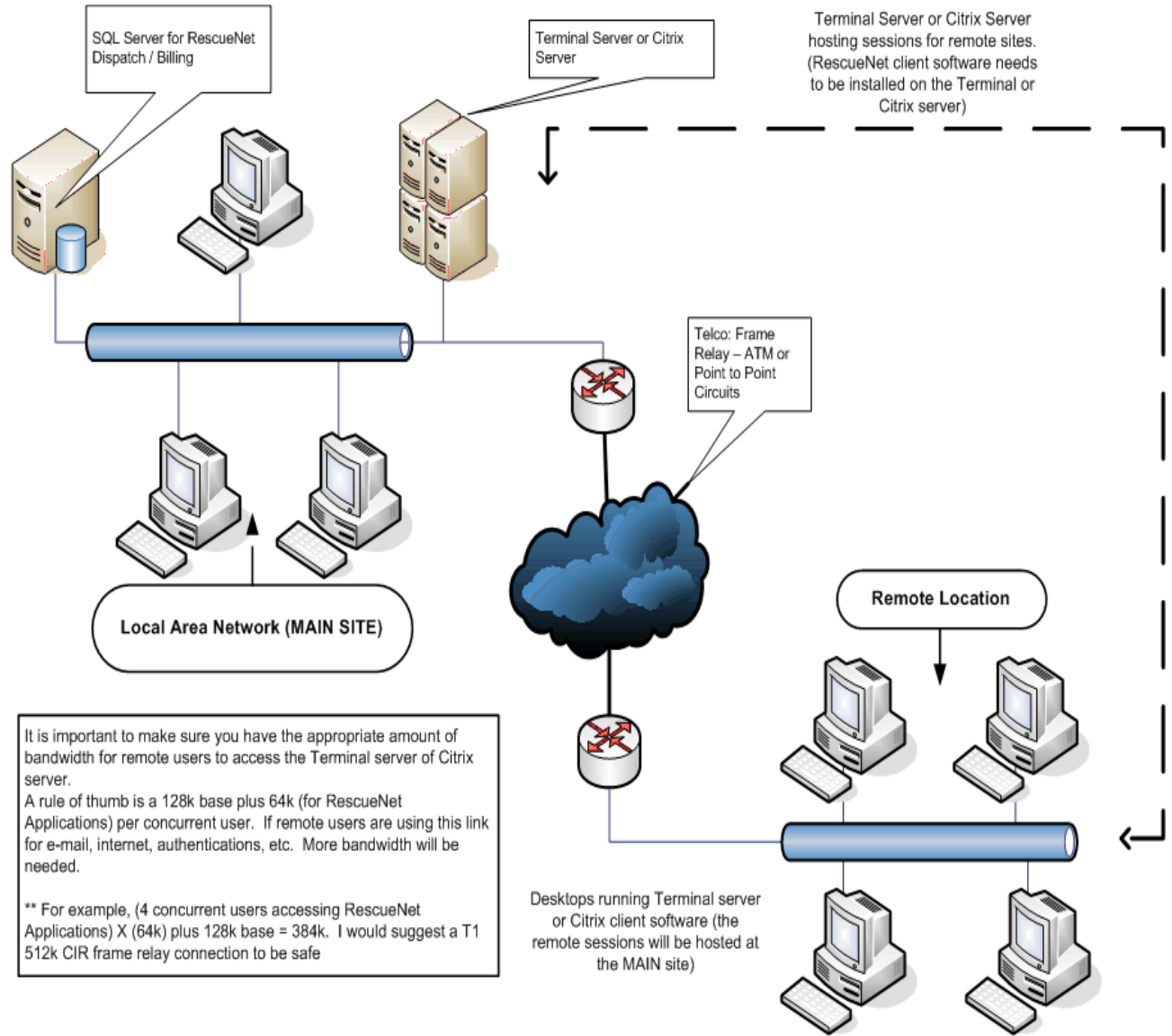
 Note: Deploying WebPCR to the internet (outside of a secured network) will require consideration from the client's IT organization to ensure deployment of this web application meets the client's security policies for internet applications. Some common security profiles used may include, but are not limited to SSL, VPN, and DMZ implementations. It is up to the client to determine which implementation method best meets their security policies.



RescueNet ePCR Suite utilizing web components in the DMZ

This diagram is designed to give a high level overview of the infrastructure required for implementing RescueNet Field Data. Please see the section Appendix C: Example Network Scenarios for descriptions of more network configurations.

## Appendix B: Sample Wide Area Network (WAN)



It is important to make sure you have the appropriate amount of bandwidth for remote users to access the Terminal server of Citrix server.  
 A rule of thumb is a 128k base plus 64k (for RescueNet Applications) per concurrent user. If remote users are using this link for e-mail, internet, authentications, etc. More bandwidth will be needed.

\*\* For example, (4 concurrent users accessing RescueNet Applications) X (64k) plus 128k base = 384k. I would suggest a T1 512k CIR frame relay connection to be safe

Desktops running Terminal server or Citrix client software (the remote sessions will be hosted at the MAIN site)

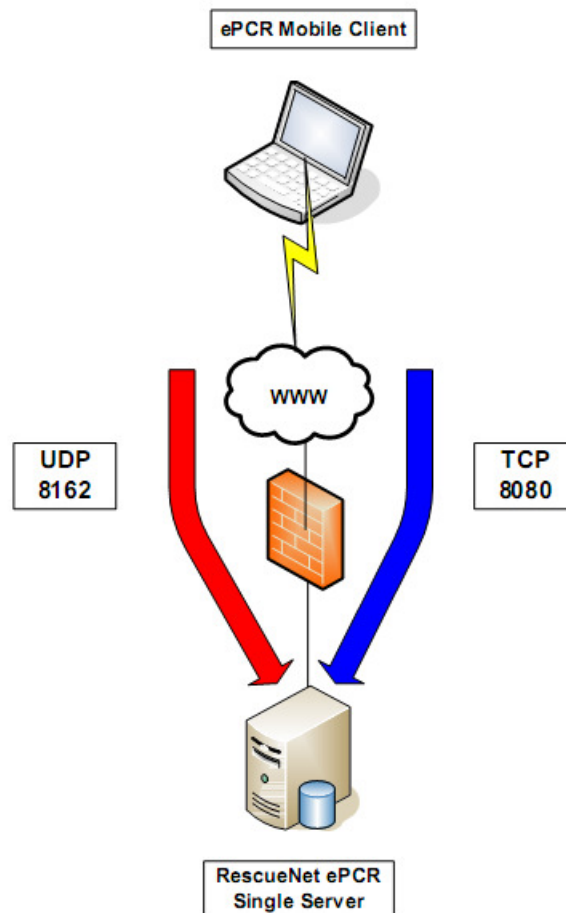
## Appendix C: Example Network Scenarios

Scenarios in this section are examples of different configurations possible with the RescueNet Field Data system. Please review the appropriate section for the amount of PCR's.

### System producing up to 50 PCR's per day

#### RescueNet ePCR Suite Only

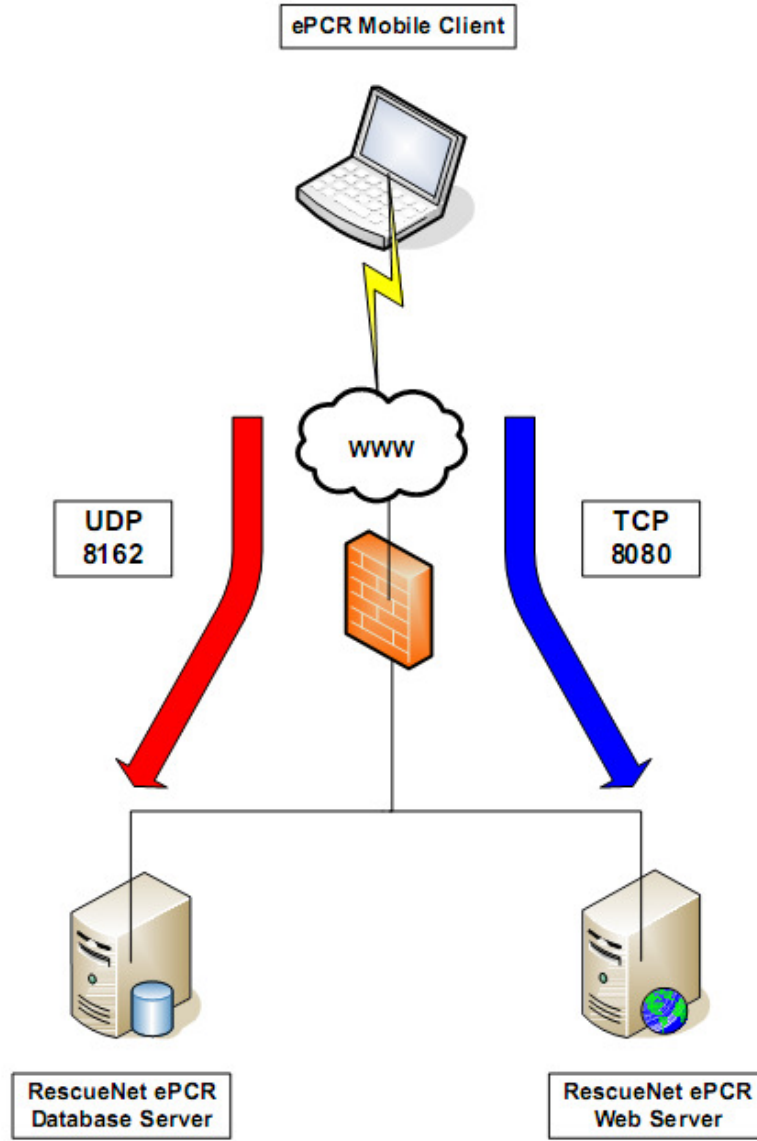
The diagram below outlines a base RescueNet ePCR Suite System. This diagram depicts a customer setup that contains TabletPCR, WebPCR. TabletPCR in this diagram is assumed to be running on tablet computers within the city. Tablet computers can be used on the local area network segment as well.



RescueNet ePCR Suite 1-50 calls per day



## System Producing up to 150 PCR's per day



RescueNet ePCR Suite 51-150 calls per day

### **RescueNet ePCR Suite Only with Fax Services**

RescueNet ePCR Suite customers that wish to also utilize the Fax Services for automation of PCR faxing to destination facilities and other will also require a Fax Server machine in addition to the ePCR Servers illustrated above. For details on the Fax Server requirements please refer to [RescueNet ePCR Suite Fax Server](#).

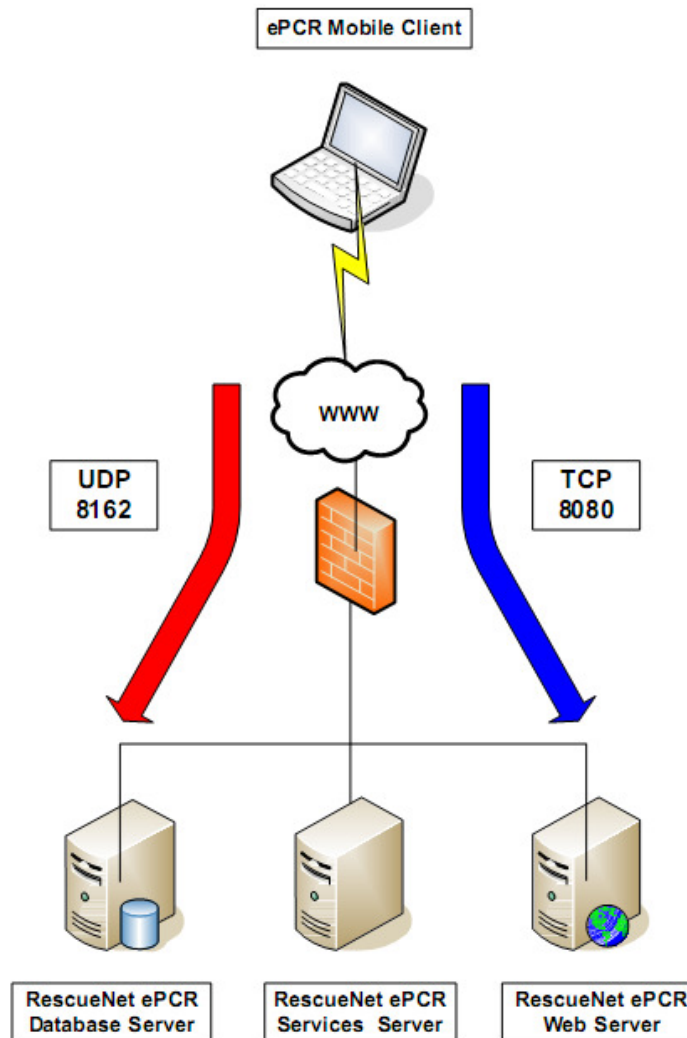
### **RescueNet ePCR Suite with Dispatch/Billing**

RescueNet ePCR Suite customers that wish to also utilize RescueNet Dispatch and/or Billing will also require a RCSQL Database Server in addition to the ePCR Servers as illustrated above. For details on the RCSQL Database Server requirements please refer to the RescueNet Dispatch/Billing Hardware Requirements.

## System producing up to 300 PCR's per day

### RescueNet ePCR Suite Only

The diagram below outlines a base RescueNet ePCR Suite System. This diagram depicts a customer setup that contains TabletPCR, WebPCR. TabletPCR in this diagram is assumed to be running on tablet computers within the city. Tablet computers can be used on the local area network segments as well.



RescueNet ePCR Suite 151-300 calls per day

### **RescueNet ePCR Suite Only with Fax Services**

RescueNet ePCR Suite customers that wish to also utilize the Fax Services for automation of PCR faxing to destination facilities and other will also require a Fax Server machine in addition to the ePCR Servers illustrated above. For details on the Fax Server requirements please refer to [RescueNet ePCR Suite Fax Server](#).

### **RescueNet ePCR Suite with Dispatch/Billing**

RescueNet ePCR Suite customers that wish to also utilize RescueNet Dispatch and/or Billing will also require a RCSQL Database Server in addition to the ePCR Servers as illustrated above. For details on the RCSQL Database Server requirements please refer to the RescueNet Dispatch/Billing Hardware Requirements.