BeneVision

Central Monitoring System Viewer

Installation Guide

■ Revision number: 2.0

■ Release date: May 2018

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- Malfunction or damage caused by force majeure events, such as (i) flood, fire and earthquake or other similar elements of nature or acts of God; (ii) riots, war, civil disorders, rebellions, or revolutions in any country; or (iii) any other cause beyond the reasonable control of Mindray.
- Malfunction or damage caused by improper operation or repair by unqualified or unauthorized service people.
- Malfunction of the instrument or part whose serial number is not legible.
- Others not caused by instrument or part itself.

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In the event that it becomes necessary to return a unit to Mindray, follow the instructions below.

1.   Obtain a return authorization.

Contact the Mindray Service Department and obtain a Mindray Customer Service Authorization Number. The Mindray Customer Service Authorization Number must appear on the outside of the shipping container. Return shipments will not be accepted if the Mindray Customer Service Authorization Number is not clearly visible. Please provide the model number, serial number, and a brief description of the reason for return.

2.   Freight policy

The customer is responsible for freight charges when this product is shipped to Mindray for service (including any relevant customs fees or other freight related charges).

3.   Return address

Please send the part(s) or equipment to the address offered by Customer Service Department.

Company Contact

Manufacturer:	Shenzhen Mindray Bio-Medical Electronics Co., Ltd.
Address:	Mindray Building, Keji 12th Road South, High-tech Industrial Park, Nanshan, Shenzhen 518057 P.R. China
Tel:	+86 755 81888998
Fax:	+86 755 26582680
Website:	www.mindray.com
Distributor:	Mindray DS USA, Inc.
Address:	800 MacArthur Boulevard Mahwah, New Jersey 07430 USA
Tel:	1.800.288.2121, 1.201.995.8000
Website:	www.mindray.com

Contents

FOR YOUR NOTES

1 Safety

1.1 Safety Information

DANGER

- **Indicates an imminent hazard that, if not avoided, will result in death or serious injury.**

WARNING

- **Indicates a potential hazard or unsafe practice that, if not avoided, could result in death or serious injury.**

CAUTION

- **Indicates a potential hazard or unsafe practice that, if not avoided, could result in minor personal injury or product/property damage.**

NOTE

- **Provides application tips or other useful information to ensure that you get the most from your product.**

1.2 Dangers

There are no dangers that refer to the product in general. Specific "Danger" statements may be given in the respective sections of this manual.

FOR YOUR NOTES

2 Introduction

2.1 Overview

The BeneVision Central Monitoring System Viewer (hereinafter referred to as the CMS Viewer) is a software package a hospital can deploy on a Microsoft Windows PC/Tablet. It allows a user to view a patient being monitored on the BeneVision Patient Monitoring Network. It only allows for remote viewing of patient data only and does not provide the functionality of remote control.

FOR YOUR NOTES

3 Planning Your Deployment

3.1 Overview

This chapter provides the necessary technical information for you to plan your deployment of the CMS Viewer within your healthcare facility.

It covers network design requirements/guidelines for connecting your facilities' network to the BeneVision Patient Monitoring System, software deployment requirements, methods for deploying the software, configuration of the software, and troubleshooting problems.

3.2 Network Design and Software Installation Requirements

3.2.1 Network Design Requirements

This section covers the network design requirements and recommendations for connection between the hospital network and the BeneVision Patient Monitoring Network. The BeneVision Patient Monitoring Network refers to the network that includes the Mindray patient monitoring network and central monitoring system network.

The purpose of the following requirements is to protect the BeneVision Patient Monitoring network and the hospital network from any cyber security threats or network issues which may exist on the either of the networks.

Restrict dataflow between the BeneVision Patient Monitoring Network and the hospital network to only what is required for the CMS Viewer to operate.

- Only TCP communications on Ports 9999, 6588 , and 6600 shall be allowed.. All other ports shall be blocked.
- Block all communications to/from IP addresses not in the specified list on the BeneVision Patient Monitoring Network
- Block application level broadcast communication between the hospital network and the BeneVision Patient Monitoring Network
- Block multicast communication between the hospital network and the BeneVision Patient Monitoring Network

Recommendation for a firewall: Mindray recommends implementation of these design requirements and recommendations through the use of the network firewall appliance.
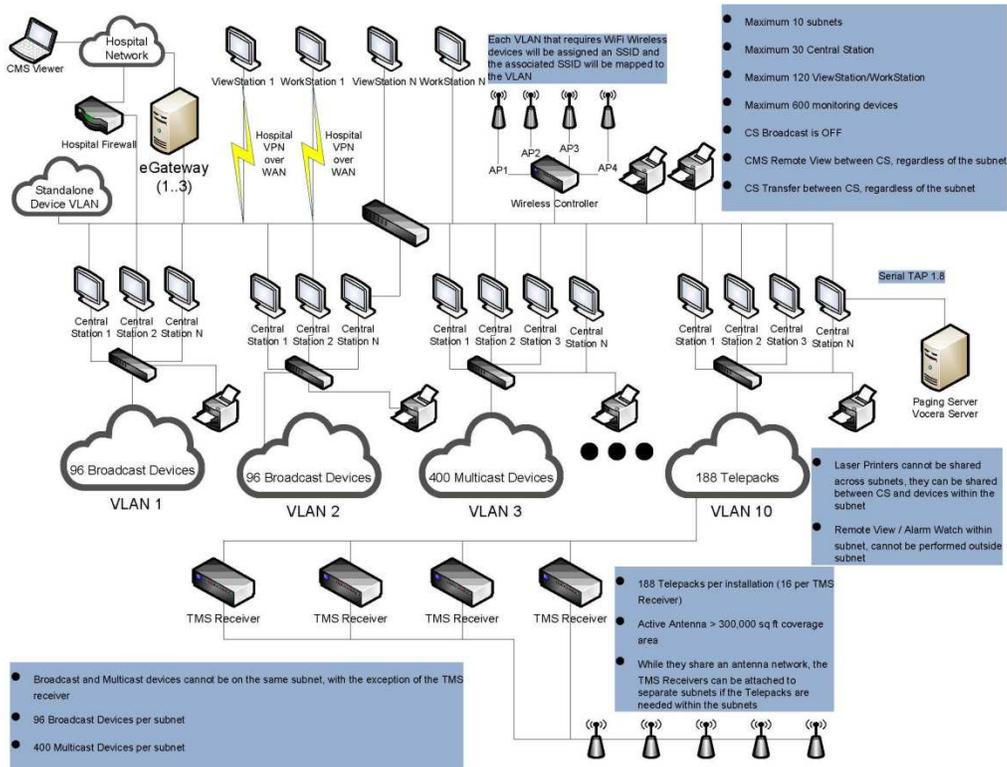
Figure 3-1 High Level Network Diagram

NOTE

● **Data communication must be performed within a closed network or within a virtually isolated network provided by a hospital for all network functions. The hospital is responsible for ensuring the security of the virtually isolated network.**

3.2.2 Software Installation Requirements

This section describes the operating environment requirements on a physical PC and on a virtual machine..

3.2.2.1 Software Requirements When Installing on a Physical PC

Basic requirements for the CMS Viewer platform are shown below.

Item	Requirements
Safety	Meet the IEC60950 requirements defined for ITE equipment and comply with CE low voltage directives (LVD) and EMC directives.
Host	CPU: 2 cores and 3.0 GHz minimum Memory: 2GB minimum Hard disk: 80GB minimum Network adapter: 100M, Ethernet 802.3
Operating System	Windows 7/8/10 (both 32bits and 64 bits)

3.2.2.2 Software Requirements When Installing on a Virtual Machine

The CMS Viewer supports application virtualization. It can be installed in a virtual machine (hereinafter referred to as the VM) with Citrix XenApp and XenDesktop7.6. The CMS Viewer is not supported in a virtual machine with Microsoft AppV or VMWare ThinApp.

This section aims to help you determine the configuration of the VM, including the network bandwidth, disk space, Memory, CPU, and roaming user profiles. The actual configuration is up to the number of clients that access the VM and view the patient data by Citrix XenApp.

When a client logs on to the VM, the VM creates a CMSViewer process, and sends the picture of the CMSViewer to the VM Receiver.

NOTE

- **Ensure efficient and stable operation of the virtual environment.**

Network Bandwidth

Item	Maximum Bandwidth for One Connection
Historical data sent from TCP port 6600 of CentralStation	2000Kbps
Realtime data sent from TCP 6588 of CentralStation	300Kbps

Disk Space

The CMS Viewer does not store patient data on the disk. It only saves logs and some configuration files on the disk. Therefore, it only occupies a maximum of 1GB disk space.

Memory

The Memory consumption is about 150MB for one Viewer.

CPU

The VM with 4 vCPU (2.67 GHz) with Citrix XenApp cansupport up to 6 clients simultaneously.

Item	<=6 Clients
Process speed	2.67 GHz
Cores	4

Supported Operating Systems:

- Windows 7 Pro SP1 (32 bit)
- Windows 7 Pro SP1 (64 bit)
- Windows 8.1 Pro SP1 (32 bit)
- Windows 8.1 Pro SP1 (64 bit)
- Windows 10 Pro SP1 (32 bit)
- Windows 10 Pro SP1 (64 bit)
- Windows 2008 R2 Enterprise SP1 (64 bit)

Roaming User Profiles

The CMS Viewer stores the system configuration file of current user in the following folder:
C:\Users\%username%\AppData\Roaming

NOTE

● **It is recommended to deploy roaming user profiles on the virtual machines.**

3.3 Installing the CMS Viewer

You can install the CMS Viewer manually on a physical PC or on a virtual machine. The method to install the CMS Viewer on a physical PC and on a virtual machine is the same.

The BeneVision Central Monitoring System Viewer software CD (P/N 115-047958-00) is required to install the CMS Viewer.
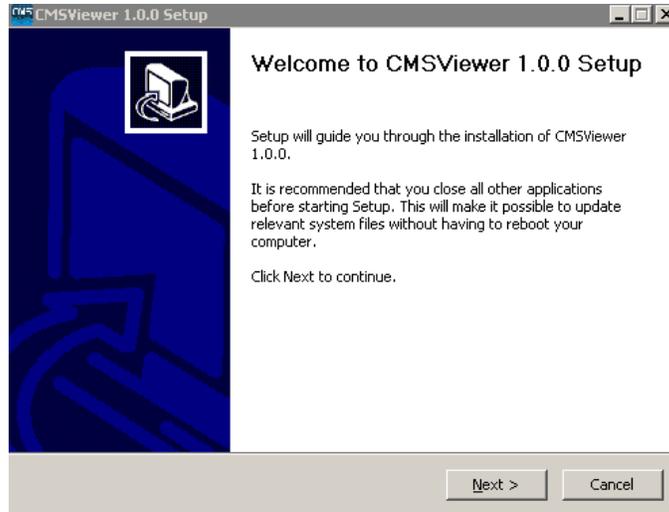
To install the CMS Viewer, follow this procedure:

1. Double click CMSViewerSetup.exe under the Setup folder of the BeneVision Central Monitoring System Viewer software CD.

2. Select the installation language, and then select the **OK** button.

Figure 3-2 Select an Installer Language

3. In the Welcome screen, select the **Next** button.

Figure 3-3 Example Welcome Screen

4. In the **User Selection** screen, select the desired installation mode, and then select the **Next** button. If the computer where the CMS Viewer is to be installed needs to be used by a single user, select **Single User**. If the computer needs to be used by multiple users, select **Multiple User**. Figure 3-4 takes **Single User** as an example only.
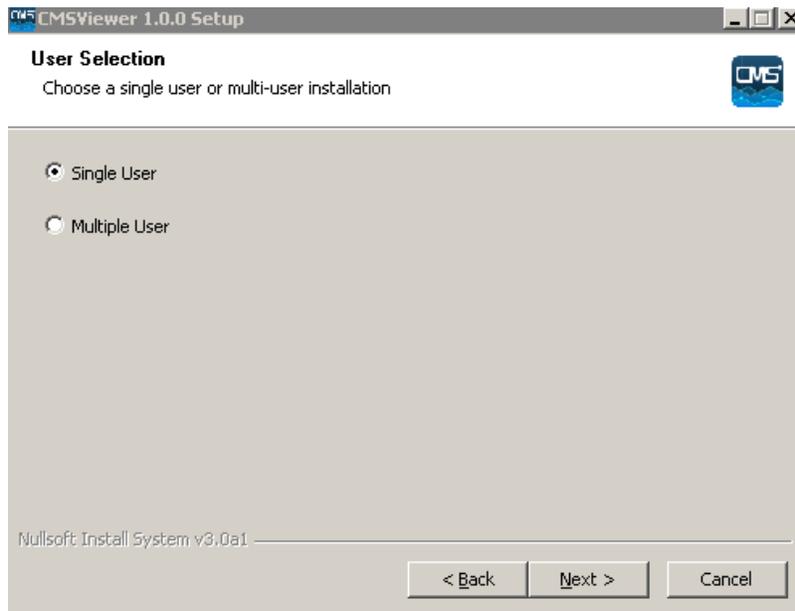
Figure 3-4 Example User Selection Screen

5. Select the destination folder where the CMS Viewer is to be installed. If you want to change the default destination installation folder, select the **Browse** button and select the desired folder.
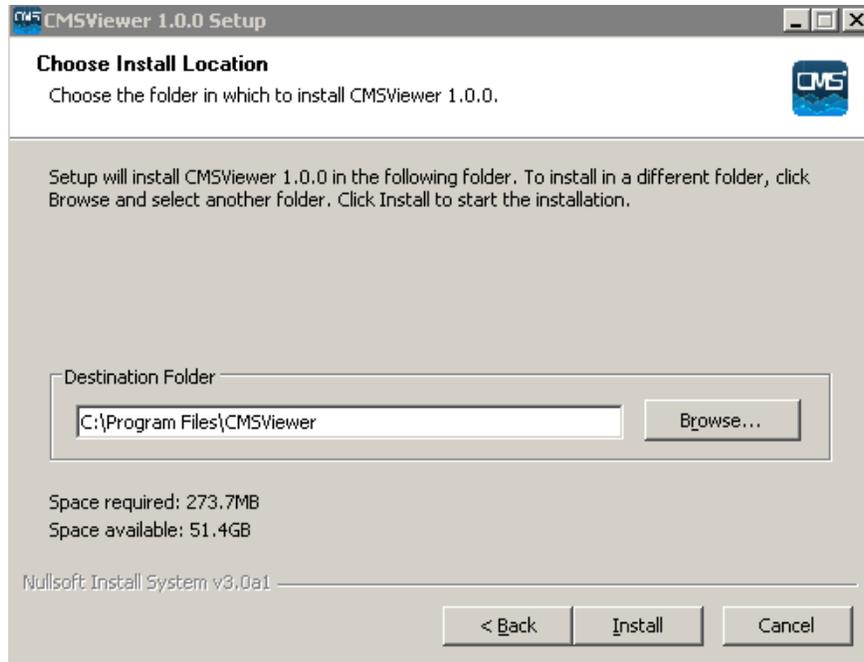
Figure 3-5 Example Choose Install Location Screen

6. Select the **Install** button.

7. Upon completion of installation, select the **Finish** button.
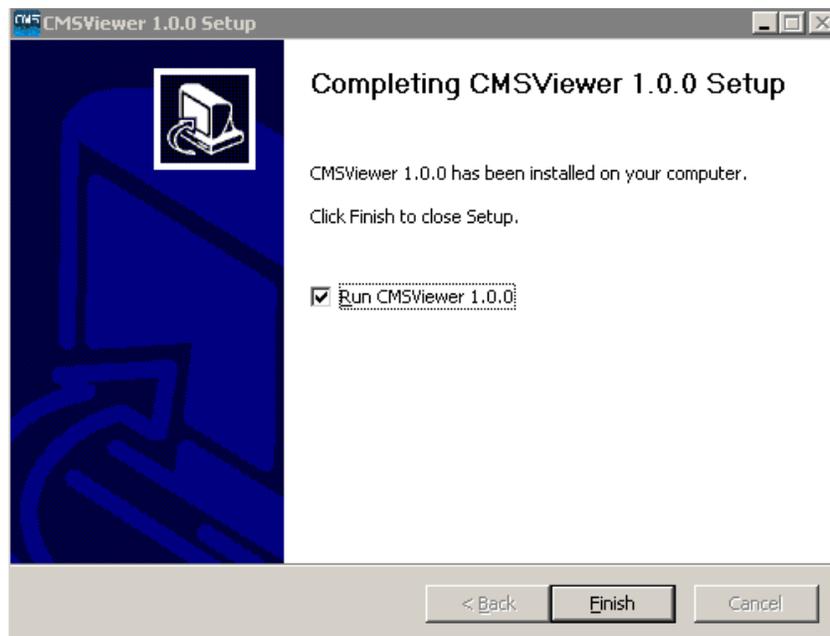
Figure 3-6 Example Viewer Installation Completion Screen

The CMSViewer shortcut is automatically created on the desktop.

3.4 Configuring the CMS Viewer Software

Once the CMS Viewer software has been installed, the CMS Viewer needs to be configured in the **System Setup** screen to allow communication to the BeneVision Patient Monitoring Network.

Before configuration, you need the following information: IP Address of the PC where the CMS Viewer Software is used for communications, Master Server IP Address, and the IP addresses of the CMS(s) you will be connecting to.

3.4.1 Connecting to the CentralStation

After starting the CMS Viewer, you need to connect the CMS Viewer to the desired CentralStation before viewing patient information from the desired CentralStation.
To connect the CentralStation, follow this procedure:

1. Select the ![mindray] button in the upper left corner of the main screen.

2. From the drop-down list, select **System Setup** to access the **System Setup** menu.

3. Select the **Network t**ab to access the network setup page.

4. Select the **General** tab.

Figure 3-7 Example General Tab

5. In the **Central Monitoring Network Setup** section, set the desired options.

   ◆ **Master Server Address**: enter the IP address or name of the CentralStation that is used as the master server. This item needs to be entered when the CMS Viewer and the CentralStation is within the same LAN. Before entering **Master Server Address**, disable the **Central Station Address** option.

   ◆ **Master Server IP Address**: it is automatically acquired after **Master Server Address** is entered.

   ◆ **Connection Status**: displays the status of connection between the CMS Viewer and the master server.

   ◆ **Local IP Address** : this IP address is used for communication between the CMS Viewer and the CentralStation.

   ◆ **Central Station Address**: when the CMS Viewer and the CentralStation are located in a different LAN, you can enable **Central Station Address** and enter up to four IP addresses of target CentralStations.

6. In the **Encryption Connection Type** section, set the desired options.

   ◆ **Only Private Encryption**: Mindray private encryption is used to encrypt the transmitted data. You cannot connect devices supporting SSL (secure sockets layer) encryption.

   ◆ **SSL Encryption Priority**: for devices supporting SSL encryption, SSL encryption is used when connecting the devices. For devices not supporting SSL encryption, private encryption is used when connecting the devices.

7. Select the **Central Station Connection** tab.

8. Select the **Connect** button beside the desired CentralStation. If the access to the CentralStation is password-protected, enter the desired password.

Once connected, the status of the CentraStation changes to **Connected**. The department of this CentralStation is also displayed under the list of department where CentralStations are located.

NOTE

- **If the CMS Viewer failed to be connected to the host CentralStation, select the CMS Viewer's IP address from the drop-down list under Local IP address.**
- **After changing the central monitoring network settings, restart the CMS Viewer.**

3.4.2 Configuring Printing

The CMS Viewer provides the capability to print reports. The printing feature utilizes the drivers installed on the PC for the printer. The CMS Viewer will always use the printer configured as the default printer in Windows.

3.5 Viewing System Information

You can view the system software version in the **System Information** the menu.

To access the **System Information** the menu, follow this procedure:

1. Select the **≡ mindray** button in the upper left corner of the main screen.

2. From the drop-down list, select **System Information**.

4 Troubleshooting

4.1 Connection Issues

When the CMS Viewer cannot be connected to the host CentralStation, do as follows:

■ Ensure that the CMS Viewer software is configured properly.

■ Ensure that the CentralStation you are connecting to authorizes remote connections

■ Ensure that communications to the Master Server and the CMS Viewer are normal.

■ Ensure the patient you are viewing is authorized to be viewed on the host CMS.

4.2 Unable to View History/Discharged Patients

When you could not view the history data of discharged patients, do as follows:

■ Ensure that the connected BeneVison CentralStation supports CMS Viewer review.

■ Ensure that the patient you are viewing is authorized to be viewed on the host CentralStation

4.3 Unable to Print

When you could not send a printing request at the CMS Viewer, do as follows:

■ Ensure that printers are installed and functioning in the Windows operating system.

■ Ensure that the intended printer is set as the default printer in the Windows operating system.

■ Ensure that the printer/PDF writer/XPS writer is not displaying a popup behind the CMS Viewer

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NOTE

● **In case of any damage or abnormality, do not use the equipment. Contact your hospital biomedical engineers or Mindray service personnel immediately.**

FOR YOUR NOTES