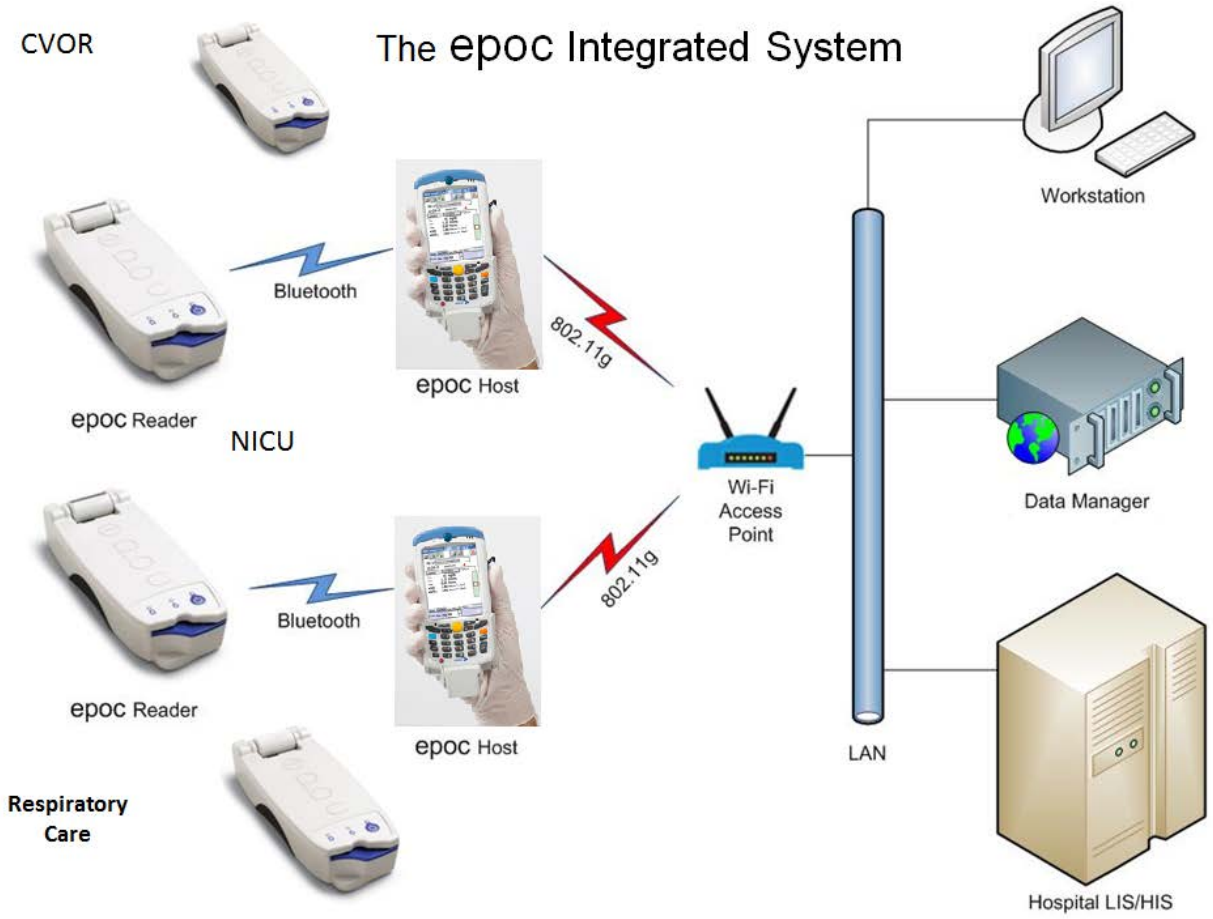
IT Information Guide

Introduction

This Technical Guide provides an overview of the Information Technology aspects of the **epoc® Blood Analysis System**. This guide includes information about following topics:

- epoc Enterprise Data Manager (EDM) server requirements;
- VPN remote access for implementation, technical support, and troubleshooting;
- epoc Host Wi-Fi connectivity requirements;
- HL7 Interface between the EDM and the Laboratory or Hospital Information System;
- Installation and continued IT support for the epoc Blood Analysis System.

The following diagram shows the basic components of the epoc Blood Analysis System:



IT Information Guide

epoc Enterprise Data Manager (EDM)

The EDM Software is a web-based software application used to collect test results from the epoc Host devices and to help manage the entire epoc System. The EDM Software is comprised of the following components:

- User interface accessed using Microsoft® Internet Explorer®, Firefox®, or Chrome™;
- Microsoft SQL Server Database Engine.

Note: This software resides on a dedicated server or virtual server built to the minimum specification described in Appendix A.

epoc Blood Analysis System

The epoc Blood Analysis System consist of three components: epoc Reader, epoc Host, and epoc Test Card.

epoc Reader

The epoc Reader is a portable device that reads information from the epoc BGEM Test Card and, using a Bluetooth wireless connection, sends raw measurement data to the epoc Host. The epoc Host uses this data to calculate test results and present them to the caregiver.

epoc Host

The epoc Host is a Microsoft Windows® Mobile-based handheld computer that wirelessly connects to the epoc Reader using Bluetooth® technology to provide a caregiver with the ability to perform patient blood testing. The epoc Host provides the following:

- A user interface from which users can enter patient data, view test results, and perform QA testing;
- The ability to view previously obtained test results stored on the epoc Host and print them to a portable printer;
- A barcode scanner to scan patient and operator IDs;
- A Bluetooth connection to the epoc Reader to perform testing;
- Transmission of test results to the EDM by connecting to an existing Wireless LAN (WLAN) using industry standard wireless security protocols.

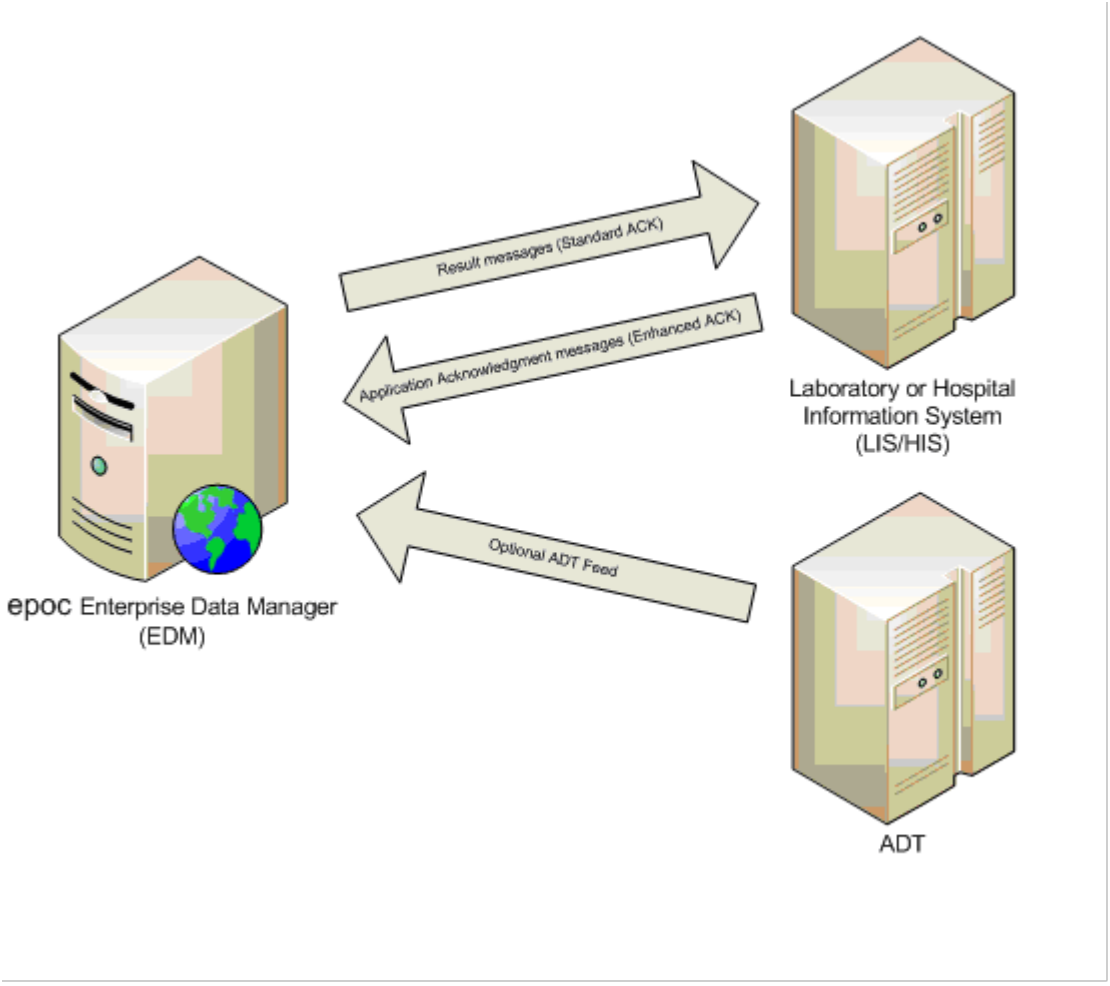
Note: See Appendix B for detailed hardware information about the epoc Host.

IT Information Guide

epoc HL7 Interface

The epoc HL7 Interface is a customizable interface used to send patient test results from the EDM to Laboratory or Hospital Information Systems. The following interface capabilities are supported:

- Sending test results to the LIS/HIS with standard acknowledgements;
- Optionally receiving Enhanced Acknowledgements initiated by the LIS/HIS indicating success or failure to process a test result;
- Optionally receiving ADT information containing patient demographic information.



IT Information Guide

Appendix A: EDM Server Requirements

System Requirements

32/64-bit Operating Systems:	Microsoft Windows Server 2016 R2 Microsoft Windows Server 2012 R2 Microsoft Windows Server 2008 R2	Microsoft Windows 7 Microsoft Windows 8.1 Microsoft Windows 10	
Supported Languages:	Czech Danish (Denmark) Dutch (Netherlands) English (US) Estonian	Estonian Finnish (Finland) French (France) German (Germany) Greek (Greece)	Hungarian Japanese (Japan) Italian (Italy) Norwegian (Bokmål) Polish	Portuguese (Portugal) Romanian (Romania) Russian (Russian Simplified Chinese Spanish (Spain) Swedish (Sweden)

System Type:	Dedicated hardware or running in a virtual environment.
Processor Type:	Intel® Core™ i5, i7, Intel Xeon™, or equivalent
Number of CPUs:	1 (4 cores per processor)
Memory:	4 GB or more
Display Resolution:	1 024x768 minimum
Network Interface	Ethernet 10BASE-T, 100BASE-T, or 1000BASE-T

Estimated Storage Requirements

Primary Drive:	60GB or more
Secondary Drive:	40GB or more (optional but recommended for larger installations)
Database Size:	5MB initial size growing by approximately 10MB per 1000 Test Records

Software Requirements

Database Engine:	Microsoft SQL Server 2008 R2, 2012, 2014, 2016, 2017
Required Software:	Microsoft Internet Explorer 11, Firefox, Chrome Microsoft .NET Framework 4.6.1 or newer. Microsoft Internet Information Services (IIS) (version dependent on OS) Java™ Runtime 8.0 (including the latest service packs) Microsoft SQL Server Management Studio Adobe® Reader® (latest version) Remote Desktop Enabled

Data Protection

Virus Protection:	Customer is responsible for installing anti-virus and anti-malware protection on the EDM Server.
Backup and Recovery:	Customer is responsible for EDM database backup.
Microsoft updates:	Customer is responsible to installing Microsoft updates and security patches according to their policies and procedures.

VPN and Remote Access

VPN:	VPN access is required for Installation and continued system support.
Remote Control:	Microsoft Remote Desktop is used to remotely access the EDM Server.
Administration:	A login account with local administrator privileges is required for installation, interface development, and system maintenance.

User Access

EDM User Access:	Users can access the EDM Web application using the following: • Microsoft Internet Explorer 11, Firefox, Chrome • Minimum display resolution of 1024 x 768

IT Information Guide

Appendix B: epoc Host[2] Specifications

	epoc Host[2] Hardware
Mobile Computer:	Zebra MC55A0-HC, mobile computer
Operating system:	Microsoft Windows Embedded Handheld 6.5 (previously Windows Mobile 6.5 Classic)
Processor:	Marvell™ PXA 320 @ 806 MHz processor
Memory:	256 MB RAM; 1 GB Flash
Display:	PenTile™ 3.5 inch Color VGA, super bright 650+ NITS
Battery:	Rechargeable Lithium Ion 3.7V 3600mAh Smart Battery
	Wi-Fi Interface
Purpose:	Transmit test results to a data manager using existing Wireless infrastructure
Network Interface:	Tri-mode IEEE™ 802.11a (5 GHz) 802.11b/g (2.4GHz)
Output Power:	14.5 dBm (typical)
Range:	Up to 30m
Wi-Fi Security:	WEP (40/128), WPA (TKIP), WPA2 (AES), TLS, TTLS (MS-CHAP), TTLS (MS-CHAP v2), TTLS (CHAP), TTLS-MD5, TTLS-PAP, PEAP-TLS, PEAP (MS-CHAP v2), LEAP, FAST
Wi-Fi Certification:	CCXv4 certified FIPS 140-2 certified (NIST FIPS 140-2 Certificate #1210)
	Bluetooth® Interface
Purpose:	Communicate with epoc Readers and Bluetooth Printers
Bluetooth Version:	Class II, v 2.1 Enhanced Data Rate (EDR)
Bluetooth Security:	128-bit encryption with PIN authentication.
Output Power:	Maximum output power: 2.5mW (4dBm) Nominal output power: 1mW (0dBm) Minimum output power: 0.25 mW (-6dBm)
Range:	Up to 10m (Data Rate: 3Mbit/s)
	Barcode Scanner
Purpose:	To scan Operator ID badges and Patient bar-coded wristbands
Barcode Scanner:	2D Imager (SE4500-DL)
Barcode Formats:	1D: UPC-A, UPC-E, UPC-E1, EAN-8, EAN-13, Code-128, UCC EAN-128, Code-39 Full ASCII Conversion, Code-39, ISBT-1281, Code-93, Interleaved 2 of 5, Discrete 2 of 5, Codabar, MSI 2D: PDF417, MICROPDF, MACROPDF, MaxiCode, DataMatrix, QRCode, MACROMICROPDF, Composite AB, Composite, TLC39, AZTEC, MICROQR

IT Information Guide

Appendix B: epoc Host² Specifications (continued)

	Certification and Compliance	
Electrical Safety:	Certified to UL/cUL 60950-1, IE C/EN60950-1	
Environmental:	RoHS-compliant; RoHS2 Directive 2011/65/EU and REACH	
Wi-Fi and Bluetooth:	USA:	FCC Part 15.247, 15.407
	Canada:	RSS-210, RSS 310
	EU:	EN 300 328, EN 300 440-2, EN 301 893
	Japan:	ARI B STD-T33, ARI B STD-T66, ARI B, STD-T70 & T71
	Australia:	AS/NZS 4268
RF Exposure:	USA:	FCC Part 2, FCC OET Bulletin 65, Supplement C
	Canada:	RSS-102
	EU:	EN 50392
	Australia:	Radio communications Standard 2003
EMI/RFI	North America:	FCC Part 15, Class B
	Canada:	ICES 003 Class B
	EU:	EN55022 Class B, EN 301 489-1, EN 301 489-17, EN 301 489-19, EN 60601-1-2
Laser Safety	IE C/Class 2/FDA ll in accordance with IE C60825-1/EN 60825-1	
	Other	
Operating Temperature	-10°C -50°C [14°F -122°F]	
Charging Temperature	0° C - 40° C [32° F - 104° F]	
Sipping/Storage Temperature	-40° C - 70° C [-40° F - 158° F]	
Operating/Shipping/Storage Humidity	Up to 85% relative humidity, non-condensing	
Water Ingress	IP64	

Questions

If you have any questions, please contact your Siemens Customer Care Center or your local Siemens technical support representative.

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