

Warranted Environment Specification

v 2.5

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1 Introduction

1.1 Purpose of document

This document defines the key technology considerations that are required for the deployment of the Wellbeing CRIS application and for other supporting applications

The contents of this document are applicable for all customers.

1.2 Audience

This document is intended for

- IT Managers
- IT Administrators
- PACS / RIS Leads
- Those involved with the implementation of any Wellbeing product

1.3 Scope

This document covers all aspects relating to the installation of CRIS and other Wellbeing applications that are linked to CRIS.

This document also covers aspects relating to the installation of E-health Records products and Maternity (EuroKing) products.

2 Warranted Environment Specifications

2.1 Core CRIS

Hardware Requirements

The following table shows the minimum hardware specification required for the CRIS product:

Global Workstation Requirements	
Processor	Any x86 dual core processor or above.
Operating system	Windows 7 with SP1 Windows 8.1 Windows 10
Network card	Minimum 100Mbit Network card
Java Virtual Machine	CRIS 2.09.10 requires Java 1.5.0_11 CRIS 2.10.00 and higher requires Java 1.8 Note that the specific version is managed internally by the CRIS Launcher. A Java installation is not a pre-requisite.

The following table shows the supported display resolutions:

Warranted Screen Resolution
1920x1080
1366x768

The following table covers the minimum RAM requirements for CRIS

Application Memory Requirements	
Application	Requirement
CRIS	Minimum of 3GB The above specification includes the minimum specification to run a CRIS client on Windows. This recommendation does not include any extra memory requirements of other software that may be in use alongside the CRIS software. Extra software typically used along with CRIS could be Dragon VR, Microsoft Office and PACS.
Dragon VR	Minimum of 4GB RAM

The following table covers the minimum storage requirements:

Application storage Requirements	
Application	Requirement
CRIS	Minimum 2GB free HDD space on installation

Voice Recognition Support

Nuance Dragon Support

Dragon provides voice recognition technology, which is integrated into the core product.

CRIS Supports

- Dragon 11 (Dragon Medical Practice Edition)
- Dragon 12 (Dragon Medical Practice Edition 2), and
- Dragon 13.2 (Dragon Medical Practice Edition 3.2)

Dragon 13.2 is the recommended version.

Dragon versions 11 and 12 are not supported on Windows 10.

Note that Dragon 13.0 is not supported.

The following table covers the minimum additional RAM requirements for using Dragon with CRIS

Application Memory Requirements	
Application	Requirement
Dragon VR	Minimum of 4GB RAM

The following table covers minimum additional storage requirements for using Dragon with CRIS:

Application Storage Requirements	
Application	Requirement
Dragon VR	Minimum 5GB free HDD space on installation

Scribetechn Augnito Support

Augnito voice recognition is supported in CRIS version 2.12, from 2.12.07 and onwards.

There is some pilot Augnito support in earlier versions of CRIS (2.10.14, 2.12.05) but functionality is limited and Augnito is not recommended in these versions for production use.

Augnito supports any speech recognition quality microphone.

The Augnito speech recognition service is a SaaS cloud-based voice-AI technology. It requires an externally-facing internet connection to this service. A minimum of 256 kbps bandwidth is required for the audio stream.

Augnito supports multiple sampling rates. A higher sampling rate will provide better quality samples for Augnito to process but will require more bandwidth to transmit.

A minimum sampling rate of 16 kHz for streaming audio is required. Automatic internet bandwidth monitoring, and notification, to ensure the connection quality required is maintained. A raw audio stream at 16 kHz needs a minimum 256 Kbps connection speed.

The maximum supported sampling rate is currently 44.1 kHz for streaming audio.

Additional Considerations

Anti-Virus

Wellbeing advise that the "C:\CRIS3" folder is excluded from any virus scanning.

Thin Client Support / Citrix

Currently CRIS is not warranted in a VDI / Citrix deployment, however there are known installations working successfully throughout the UK.

Tablets and touch-screen devices

CRIS is not currently warranted on any tablets.

Customers should be aware that emerging drivers on some laptops and other devices with touchscreens have exhibited some incompatibilities with CRIS. Customers are advised to check specific device compatibility for their preferred version of the CRIS application.

2.2 CRIS Reporting

The CRIS Reporting product is a web application and as such, for minimum installation, only a web browser is required.

However to assist in installation of a supported web browser (see below) and to enable integration with Voice Recognition software (Nuance/Dragon only), the recommended deployment of CRIS Reporting is via an executable installer. This deploys the application within an Electron framework and fetches its configuration from a web server.

Hardware Requirements

The following table shows the minimum hardware specification required for the CRIS Reporting product:

Global Workstation Requirements	
Processor	Any x86 dual core processor or above.
Operating system	Windows 7 with SP1 Windows 8.1 Windows 10
Network card	Minimum 100Mbit Network card
Microsoft .NET Framework (required for VR integration only)	4.5

The following table shows the supported display resolutions:

Warranted Screen Resolution
1920x1080
1366x768

The following table covers the minimum RAM requirements for CRIS

Application Memory Requirements	
Application	Requirement
CRIS Reporting	Minimum of 200 MB RAM
VR Integration (Dragon)	Minimum of 1 MB RAM

The following table covers the minimum storage requirements:

Application storage Requirements	
Application	Requirement
CRIS Reporting	Minimum 200 MB free HDD space
VR Integration	Minimum 1MB free HDD space

Voice Recognition Support

Nuance Dragon Support

Dragon provides voice recognition technology, via an application installed on each workstation..

CRIS Reporting Supports

- Dragon 11 (Dragon Medical Practice Edition)
- Dragon 12 (Dragon Medical Practice Edition 2), and
- Dragon 13.2 (Dragon Medical Practice Edition 3.2)
- Dragon 15

The recommended version of Dragon is version 13.2

The minimum additional requirements for using Dragon are as follows:

- Minimum of 4GB RAM
- Minimum 5GB free HDD space on installation

Scribetech Augnito Support

Augnito voice recognition is supported in version 1.14.0 onwards

Augnito supports any speech recognition quality microphone.

The Augnito speech recognition service is a SaaS cloud-based voice-AI technology. It requires an externally-facing internet connection to this service. A minimum of 256 kbps bandwidth is required for the audio stream.

Augnito supports multiple sampling rates. A higher sampling rate will provide better quality samples for Augnito to process but will require more bandwidth to transmit.

A minimum sampling rate of 16 kHz for streaming audio is required. Automatic internet bandwidth monitoring, and notification, to ensure the connection quality required is maintained. A raw audio stream at 16 kHz needs a minimum 256 Kbps connection speed.

The maximum supported sampling rate is currently 44.1 kHz for streaming audio.

Browser Support

CRIS Reporting can be run in a web browser without installation. In this case, Voice Recognition will not be supported.

The table below shows the browsers supported:

Application	Google Chrome	Firefox	Internet Explorer	Microsoft Edge	Safari	Opera
CRIS Reporting	Yes	No	No	No	No	No

2.3 CRIS Context Manager

This application provide integration between CRIS products (core CRIS, CRIS Reporting) and external systems (e.g. PACS)

Hardware Requirements

The following table shows the minimum hardware specification required for the Context Manager product:

Global Workstation Requirements	
Processor	Any x86 dual core processor or above.
Operating system	Windows 7 with SP1 Windows 8.1 Windows 10
Network card	Minimum 100Mbit Network card
Microsoft .NET Framework	4.5

There are no display resolution requirements.

The following table covers the minimum RAM requirements:

Application Memory Requirements	
Application	Requirement
CRIS Context Manager	Minimum of 80 MB RAM

The following table covers the minimum storage requirements:

Application storage Requirements	
Application	Requirement
CRIS Context Manager	Minimum 20 MB free HDD space

2.4 CRIS Mobile

This application is web-based and requires no installation.

The application is intended for use on a tablet, but will also function on a standard laptop or desktop PC.

Minimum recommended screen resolution is 1024x768.

Browser Support

The following are the recommended browsers by operating system:

Recommended Browsers		
Operation System	Recommended Browser	Other Supported Browsers
iOS (latest)	Safari	Google Chrome
Android (latest)	Google Chrome	
Windows 7, 8.1	Google Chrome	Internet Explorer version 11, Edge
Windows 10	Google Chrome	Internet Explorer version 11, Edge

Note:

- Edge is supported on earlier versions of Windows whilst Microsoft also maintains support. See <https://docs.microsoft.com/en-us/deployedge/microsoft-edge-supported-operating-systems> for information on the security risks of using Edge with older versions of Microsoft Windows
- Earlier versions of Internet Explorer are neither supported nor recommended.
- Firefox is neither supported nor recommended.

2.5 CRIS Scheduler

This application is web-based and requires no installation.

The following table shows the supported display resolutions:

Warranted Screen Resolution
3440x1440
1920x1080 (recommended)
1366x768

The table below shows the browsers supported:

Application	Google Chrome	Firefox	Internet Explorer	Microsoft Edge	Safari	Opera
CRIS Scheduler	Yes	No	No	No	No	No

2.6 CRIS Vetting

This application is web-based and requires no installation.

The following table shows the supported display resolutions:

Warranted Screen Resolution
1920x1080
1366x768

The table below shows the browsers supported:

Application	Google Chrome	Firefox	Internet Explorer	Microsoft Edge	Safari	Opera
CRIS Vetting	Yes	No	No	No	No	No

Note that if CRIS Vetting is being used in conjunction with CRIS Reporting then it may also be deployed within the same Electron framework. See section 2.2, above, for details.

2.7 CRIS Order Comms

This application is web-based and requires no installation.

The following table shows the supported display resolutions:

Warranted Screen Resolution
1920x1080
1366x768

The table below shows the browsers supported:

Application	Google Chrome	Firefox	Internet Explorer	Microsoft Edge	Safari	Opera
CRIS Order Comms	Yes	No	No	No	No	No

2.8 CRIS Patient Reviewer

This application is web-based and requires no installation.

The following table shows the supported display resolutions:

Warranted Screen Resolution
1920x1080
1366x768

The table below shows the browsers supported:

Application	Google Chrome	Firefox	Internet Explorer	Microsoft Edge	Safari	Opera
CRIS Patient Reviewer	Yes	No	No	No	No	No

2.9 CRIS Administration

This application is web-based and requires no installation.

The following table shows the supported display resolutions:

Warranted Screen Resolution
1920x1080
1366x768

The table below shows the browsers supported:

Application	Google Chrome	Firefox	Internet Explorer	Microsoft Edge	Safari	Opera
CRIS Administration	Yes	No	No	No	No	No

2.10 iCRIS

This application is web-based and requires no installation.

Browser Support

The following are the recommended browsers by operating system:

Recommended Browsers		
Operation System	Recommended Browser	Other Supported Browsers
Windows 7, 8.1	Firefox	Internet Explorer 9, Internet Explorer 10.
Windows 10	Internet Explorer version 11	Firefox , Internet Explorer 9, Internet Explorer 10.

2.11 eConsent

This application is web-based and requires no installation.

The application is intended for use on laptop and desktop PCs, but will also function on a tablet when used as intended as a personal (single user) device.

Minimum recommended screen resolution is 1024x768.

Browser Support

The following are the recommended browsers by operating system:

Recommended Browsers		
Operation System	Recommended Browser	Other Supported Browsers
Android (latest)	Google Chrome	
Windows 7, 8.1	Google Chrome	Internet Explorer version 11, Edge
Windows 10	Google Chrome	Internet Explorer version 11, Edge

Note:

- Edge is supported on earlier versions of Windows whilst Microsoft also maintains support. See <https://docs.microsoft.com/en-us/deployedge/microsoft-edge-supported-operating-systems> for information on the security risks of using Edge with older versions of Microsoft Windows
- Earlier versions of Internet Explorer are neither supported nor recommended.
- Firefox is neither supported nor recommended.

2.12 Stratus

This application is web-based and requires no installation.

The application is intended for use on laptop and desktop PCs, but will also function on a tablet when used as intended as a personal (single user) device.

Minimum recommended screen resolution is 1024x768.

Browser Support

The following are the recommended browsers by operating system:

Recommended Browsers		
Operation System	Recommended Browser	Other Supported Browsers
Android (latest)	Google Chrome	
Windows 7, 8.1	Google Chrome	Internet Explorer version 11
Windows 10	Google Chrome	Internet Explorer version 11

Internet Explorer version 8 is neither supported nor recommended.

Firefox is neither supported nor recommended.

2.13 EuroKing Maternity Information System

Pre-requisites – Server

Infrastructure can be virtualised using either VMWare or HyperV. Application virtualisation is supported when using Citrix and Windows RD Web

Software Requirements	
Processor	Any x86 dual core processor or above.
Operating system	Server 2012 r2 Server 2016 Server 2019
Web Server Version (IIS)	IIS 10
Database software level	12.0.5. or newer (SQL Server 2014 SP2) SQL Server 2019
Java Version	8
.Net Framework	3.5
Fonts Installed	Freeware 128 font
Software	PDF Reader

N3 Firewall Configuration				
Ports	Destination	Protocol	Direction	Completed
3389	10.215.205.32/27 10.218.42.192/26 195.107.193.192/26	TCP	Inbound	
5985	10.215.205.36	TCP	Both	
5986	10.215.205.36	TCP	Both	
80	10.215.205.36	TCP	Outbound	

N3 Routing Requirements			
SIN	N3 Details	Gateway	IP Range
N3 442109	10.215.205.36/27	10.215.205.33	10.215.205.33 to 10.215.205.62
N3 454688	10.218.42.192/26	10.218.42.193	10.218.42.193 to 10.218.42.254
N3 437929	195.107.193.192/26	195.107.193.193	126.107.193.193 to 126.107.193.254

Domain Requirements	
Alias	Target Host
EuroKing-Test-FE	Test Web Server
EuroKing-Test-BE	Test Database Server
EuroKing-Live-FE	Live Web Server
EuroKing-Test-BE	Live Database Server

Database Server	
Disk	<p>C:\ Windows Operating System > 100GB</p> <p>All the below database volumes should be formatted with a 64kb block size</p> <p>D:\ Database > 1TB</p> <p>E:\ Log files and cache > 500GB</p> <p>F:\ Database and Log file local backups > 1TB</p>
Compute	4x core
Memory	16GB minimum
Network	Redundant 100MB minimum, 1000MB recommended
SQL Installation	<p>Authentication: Mixed Mode</p> <p>Collation: Latin1_General_CI_AS</p>
Software	<p>SQL Server Management Studio (minimum version 10)</p> <p>SQL Server Reporting Services (minimum version 10)</p> <p>Visual Studio (SSDT) (minimum version 10)</p>
Fonts Installed	Freeware 128 font
Software	PDF Reader

IIS/Interface Server	
Disk	C:\ Windows Operating System > 100GB
Disk	D:\ Postgres Database and message logs (Only if separate interface server not available) 250GB
Compute	2x core
Memory	6GB minimum
Network	Redundant 100MB minimum, 1000MB recommended

Pre-requisites – Client

Software Requirements	
Operating System	Windows 7 minimum, Windows 10 recommended
.Net Framework	3.5
Fonts Installed	Freeware128font
Software	PDF Reader
Display	<p>1024x768 minimum resolution</p> <p>100% Display scaling</p>

EuroKing System Requirements

System Requirements	
Antivirus	%userprofile%\AppData\Local\E3Net C:\Program Files (x86)\EuroKing
Username	Recommend to mirror network names to assist with Single Sign On/LDAP
Printers	Recommendation for Blood Spot Labels Manufacturer Model Name IP address Network printer server share Printer Tray

2.14 Personal Health Record & Intrapartum Module

Assumptions:

- EuroKing 1.8 is installed
- New infrastructure may be required if customer opts for DRN/DMZ architecture

Components	
Operating System	Server 2012 R2 Minimum, Server 2016 recommended
Web Server Version (IIS)	IIS 10
Database Software Level	12.0.5. or newer (SQL 2014 SP2)
Java Version	8
.Net Framework	4.6
E3 Application Version	1.8

Components:

1. WFE – Web Front End, Web Server
2. CA – Certification Authority, a provider of an SSL Certificate
3. CAS – Central Authentication Service

Maternity API	
Port	443 (Connections from WFE) 443 (Connections from Internet) 5986 (Connections from N3)
Disk	100MB
Memory	512MB
Certificates	SSL from internal CA SSL from public CA
Network	No additional
Other Software	.Net framework 4.6 IIS 10

CAS

Port	Connections from Maternity API Live – 7010 Test – 7011 Training - 7012 5986 (Connections from N3)
Disk	1GB
Memory	1GB
Certificates	SSL from internal CA
Network	No additional
Other Software	JDK 8u202 Apache Tomcat CAS OpenSSL

Authenticator API	
Port	Connections from CAS Live – 7020 Test – 7021 Training - 7022 5986 (Connections from N3)
Disk	100MB
Memory	512MB
Certificates	SSL from internal CA
Network	No additional
Other Software	.Net framework 4.6 IIS 10

Web Front End	
Port	443 (Connections from Internet) 5986 (Connections from N3)
Disk	No additional
Memory	512MB
Certificates	SSL from public CA
Network	No additional
Other Software	.Net framework 4.6 IIS 10

EuroKing Database

Port	1433 (Connections from Mat. API) 1433 (Connections from Auth. API) 5986 (Connections from N3)
Disk	No additional
Memory	512MB
Certificates	SSL from public CA
Network	No additional
Other Software	.Net framework 4.6 IIS 10

The PHR architecture is very flexible and can be modified to suit different use cases. Our recommended installation would be to place the new components required for PHR on the existing EuroKing web server, providing the server with more resource to be able to handle the extra load. A mirror of the infrastructure will need to be implemented as a test/Dev/UAT environment. The configuration required for the existing server and the new DMZ based server would be as below.

EuroKing web server

Ports: Open from DMZ:
Live –7010 and 7020
Test –7011 and 7021
Training –7012 and 7022
5986 open to N3
Disk:1.5GB free
Memory:2.GB free

EuroKing Database server

Ports:1433 open from DMZ
1433 open from WFE
5986 open to N3
Memory:2.GB free

DMZ Server

Ports:443 open from internet (only to EuroKing IP's for test)
5986 open to N3CPU:2 x cores
Memory: 4GB
Storage:60GB C:\drive

2.15 Community Offline

Components	
Operating System	Server 2012 R2 Minimum, Server 2016 recommended
Web Server Version (IIS)	IIS 10
Database Software Level	12.0.5. or newer (SQL 2014 SP2)
.Net Framework	4.6
E3 Application Version	1.7

Offline Web Service	
Port	5986 (Connections from N3)
Disk	100MB
Memory	512MB
Network	No additional
Other Software	.Net framework 4.6

Software Requirements	
Operating System	Windows 7 minimum, Windows 10 recommended
.Net Framework	4.6
Fonts Installed	Freeware128font
Software	PDF Reader

Hardware Specification (Device)	
Disk	1GB free space
Compute	2x core
Memory	4GB minimum
Network	100MB or WiFi

3 Peripheral Considerations

Speech Microphones

Wellbeing have tested and warrant the following speech input devices for use with Dragon

- Philips LFH3200/00 speech mic
- Sennheiser USB 30 headset
- Dragon HS-GEN-25 headset

Other speech mic's natively supported by the windows operating system are also warranted.

Augnito supports any speech recognition quality microphone

Printers

For letter and report printing, CRIS will work with any printer that supports "postscript" printing standards and has the relevant windows drivers installed. Wellbeing has no recommendation for standard Windows printers but for label printing, the Zebra TLP2844 has proven to be popular and reliable with other customers.

Scanners

Any Twain compliant scanner, this can either be a flatbed or pass-through type document scanner. Recommended scanner settings can be found in CRIS Training materials.

Barcode readers

Any Windows compatible barcode reader capable of reading "3of9" (code39) barcodes. We currently recommend readers from DataLogic and Griffon.

Other USB devices

Any other USB device (with the exception of USB memory sticks/drives) such as foot pedals, smart card readers etc are likely to work but are unwarranted.

Document Control

Title	Warranted Environment Specification		
Author		Date Created	24/05/2017
File Ref.	Wellbeing Warranted Environment Specification v2.5.docx		
Version	v 2.5		
Change History			
Issue	Date	Author / Editor	Details of Change
0.1	15.03.2022	Bazil Caygill	First draft
1.0	11/05/2012	Craig Wilson	Initial Document
1.1	10/08/2012	Simon Hodson	Corrections
1.2	03/09/2012	Simon Hodson	Clarifications to PC specification
1.3	18/10/2012	Paul Wright	Further clarifications to PC Specification
1.4	03/12/2012	Paul Wright	Windows 8 added.
1.5	14/02/2013	Paul Wright	Memory clarification wording made clearer.
1.6	23/01/2015	Dale Betts	Bandwidth clarification.
1.7	05/02/2015	Dale Betts	Bandwidth clarification.
1.8	08/08/2016	Craig Wilson	Updates to browser support and supported O/S
1.9	24/05/2017	Bazil Caygill	Integrated sections on CRIS Reporting, mobile RIS, Context Manager. Reformatted.
1.10	22/12/2017	Bazil Caygill, Lee Sykes	Removal of 64-bit references. Minor formatting
1.11	22/12/2017	Bazil Caygill	Reviewed, minor updates, rebrand
1.12	13/03/2019	Bazil Caygill	Added CRIS Administration application
1.13	27/02/2020	Chris Burdett	Added Stratus and eConsent applications
2.0	15/04/2020	Alistair Richards	Added maternity product requirements
2.1	24/03/2021	Bazil Caygill	Updates for Evo and new products
2.2	09/04/2021	Bazil Caygill	Added CRIS Vetting
2.3	17/06/2021	Bazil Caygill	Added refs to Edge in Windows 7/8
2.4	26/04/2022	Bazil Caygill	Updates to Euroking, Voice recognition
2.5	13.10.2022	Bazil Caygill	Updates to core CRIS, CRIS Reporting, eConsent, IE support
Review Date		01/04/2023	

Approval Sign-off			
Owner	Role	Date	Issue
Bazil Caygill	Software Development Manager	13.10.2022	2.5
Approver	Role	Date	Issue
Philip Brentnall	Product Director		