

PeriGen, Inc.

PeriWatch[®] Tracings[™] System Requirements



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Enterprise Model (Multi-Facilities) Server Requirements

- A full enterprise setup of PeriWatch Tracings and decision support modules requires a base configuration of 3 servers VMs as follows:
 - PeriWatch Tracings Application/DB/HL7 Interface VM
 - PeriWatch Decision Support Modules VM: PeriWatch Cues™, Curve™ and HUB™
 - PeriWatch Tracings Test/Train/Custom Reports VM
- See “Small Site configuration” section for sites <1000 births annually and <10 monitored locations
- System sizing is based on peak utilization and as a function of total monitored areas. Sizing below is based on projected requirements for approximately 5 years.
- Final configuration and optimization based on actual enterprise layout will be determined at system implementation planning stage
- VMware is currently supported on version 5.x and 6.x. Other platforms may require extra validation services
- If required, physical server(s) option should be equivalent to the VM specifications below.

PeriWatch Tracings – Enterprise Main DB/Application Server (VM)

# of Monitored locations	10	25	50	75	100	150	200
# of vCPUs	2	3	3	4	5	6	7
GB RAM	8	8	12	14	16	16	20
Volume C: OS	60 GB	60 GB	60 GB	60 GB	60 GB	60 GB	60 GB
Volume D: Applications	40 GB	40 GB	40 GB	40 GB	40 GB	40 GB	40 GB
Volume E: SQLData	200 GB	230 GB	260 GB	300 GB	330 GB	360 GB	400 GB
Volume F: SQLTransactionLog	50 GB	50 GB	50 GB	50 GB	50 GB	50 GB	50 GB
Volume G : SQLBackup	200 GB	230 GB	260 GB	300 GB	330 GB	360 GB	400 GB

- Gigabit Ethernet (Number of NICs may change depending on load and storage considerations)
- Microsoft Windows 2008 R2 Service Pack 1 or Windows Server 2012 R2
 - Internet Information Services (IIS) installed
 - ASP.NET
 - Windows Authentication
- MS SQL 2014 SP2 with Reporting Services
- The following ports should be free and available for use:
 - TCP: 91, 92, 7100, 7200, 7802, 7803, 8000-8020, UDP: 11002
 - VC++ 2008 SP1 Redistributable, VC++ 2010 SP1 Redistributable
 - .Net 3.5 SP1, .Net 4.5.2

PeriWatch Decision Support Server – Enterprise Server (VM)

# of Monitored locations	10	25	50	75	100	150	200
# of vCPUs	2	2	2	4	4	4	4
GB RAM*	8	8	8	8	12	12	12
Volume C: OS	40 GB	40 GB	40 GB	40 GB	40 GB	40 GB	40 GB
Volume D: Applications/SQL*	100 GB	100 GB	100 GB	100 GB	100 GB	100 GB	100 GB

* Sizing based on the use of all Decision Support modules. May be optimized depending on actual installed modules

- Gigabit Ethernet (Number of NICs may change depending on load and storage considerations)
- Microsoft Windows 2008 R2 Service Pack 1 or Windows Server 2012 R2
 - Internet Information Services (IIS) installed
 - ASP.NET
 - Windows Authentication
- MS SQL 2014 Express with Reporting Services
- The following ports should be free and available for use:
- TCP: 91, 92, 7100, 7200, 7802, 7803, 8000-8020, UDP: 11002
- VC++ 2008 SP1 Redistributable, VC++ 2010 SP1 Redistributable
- .Net 3.5 SP1, .Net 4.5.2

PeriWatch Tracings - Test/Training/Custom Reports (VM)

- A minimum of 1 TEST/Train server is mandatory. More servers can be instantiated as needed
- 4 vCPUs
- 8GB RAM
- Storage requirements per volume:
 - C: Operating system - 60 GB
 - D: Applications/SQLData/Logs - 200 GB
- Gigabit Ethernet
- Microsoft Windows 2008 R2 Service Pack 1 or Windows Server 2012 R2
 - Internet Information Services (IIS) installed
 - ASP.NET
 - Windows Authentication
- MS SQL 2014 SP2 with Reporting Services
- The following ports should be free and available for use:
- TCP: 91, 92, 7100, 7200, 7802, 7803, 8000-8020, UDP: 11002
- VC++ 2008 SP1 Redistributable, VC++ 2010 SP1 Redistributable
- .Net 3.5 SP1, .Net 4.5.2

Small Site Configuration (<1000 births annually and <10 monitoring locations)

- A small site configuration application to <1000 birth and under 10 monitoring locations
- With such a small load, the Decision Support Modules can be consolidated to the primary Application/DB server as follows:
 - PeriWatch Tracings Application/DB/Decision Support/HL7 Interface VM
 - PeriWatch Tracings Test/Train/Custom Reports VM
- System sizing is based on peak utilization and as a function of total monitored areas. Sizing below is based on projected requirements for approximately 5 years.
- Final configuration and optimization based on actual enterprise layout will be determined at system implementation planning stage
- VMware is currently supported on version 5.x and 6.x. Other platforms may require extra validation services
- If required, physical server(s) option should be equivalent to the VM specifications below.

PeriWatch Tracings – All-In-One Server (VM)

# of Monitored locations	10
# of vCPUs	4
GB RAM	12
Volume C: OS	60 GB
Volume D: Applications	40 GB
Volume E: SQLData	250 GB
Volume F: SQLTransactionLog	50 GB
Volume G : SQLBackup	250 GB

- Gigabit Ethernet (Number of NICs may change depending on load and storage considerations)
- Microsoft Windows 2008 R2 Service Pack 1 or Windows Server 2012 R2
 - Internet Information Services (IIS) installed
 - ASP.NET
 - Windows Authentication
- MS SQL 2014 SP2 with Reporting Services
- The following ports should be free and available for use:
- TCP: 91, 92, 7100, 7200, 7802, 7803, 8000-8020, UDP: 11002
- VC++ 2008 SP1 Redistributable, VC++ 2010 SP1 Redistributable
- .Net 3.5 SP1, .Net 4.5.2

Archive Storage

- SAN or NAS storage can be used for long term encrypted archive storage (customer supplied)
- Archive storage requirements is based on storage requirement of 5 MB per birth.
- Illustration:
 - 8000 births annually for the entire enterprise
 - 8000 births per year x 5MB = 40GB/year.

Client / Workstation Requirements

- Microsoft Windows 7 Professional 32/64-bit (SP1)
- 2GB RAM. 250 MB of available memory should be reserved for PeriWatch Tracings modules.
- 1280x1024 (4:3) is the recommended standard minimal resolution supported by the system.
- 1024x768 (4:3) is supported with PeriWatch but not supported when Cues & Curve modules are purchased.
- Higher resolutions in 16:9 or 16:10 aspect ratios are supported only in native resolution (non-native resolutions or aspect ratios will result in a stretched representation of fetal tracings and are not supported)
- .NET Framework 3.5 Service Pack 1
- .NET Framework 4.5.2 Full client profile
- Microsoft Visual C++ Redistributable 2008 SP1 and 2010 SP1 (x86/x64).
- Wireless network is not recommended for the PeriWatch Tracings application. If required, PeriGen will collaborate with the customer to confirm that PeriWatch application performs as expected on the site's wireless environment.
- Large Screen displays of non-interactive multi-tracing Surveillance or Census screens are supported in full screen in native resolutions only (typically 1920x1080). Different resolutions may require separate validation procedures and must be verified in advance with PeriGen personnel
- **IMPORTANT:** Interaction and acknowledgement with Fetal Alerts must be done on designated workstations where their MAC address is fixed and mapped in the PeriWatch administrative configuration. These stations are designated "Alerting Stations" and must typically be fixed thick clients.

Thin-Client Technologies

- Citrix deployment of PeriWatch Tracings client application is supported for non "Alerting Stations" for example, remote access sessions or areas outside L&D unit that do not require to interact/acknowledge with fetal alerts. Visual alert indicator will always show on any session.
- VDI client technologies such as VMware View is only supported for non-Alerting Stations (stations that do not require to interact/acknowledge fetal alerts).
- Citrix server / VMware view server sizing should be aligned with PeriWatch Client requirements and number of concurrent session requirements (see previous section). Precise server and memory recommendations are a function of overall site load. Recommendations will be finalized during system implementation.

Network (For Workstations and Data Acquisition)

- Switched Ethernet network, 100 Mbit or better
- CAT5+ dedicated cabling between each monitoring area and networking closet. Point-to-point configuration recommended.
- Proprietary cables between the fetal monitor and wall-plate are provided by PeriGen.

Tracing Data Acquisition

PeriGen provide a proprietary, secure and resilient solution dedicated to the store and forward of tracing data across the system:

- PeriWatch DAS™, a 16 port RS485 to Ethernet device with internal cache. Total number of DAS devices should be determined by total number of monitoring locations, physical vicinity to the networking closets and a 75% port utilization for port redundancy.
- PeriWatch Single gang wall-plate – For bedside wall mounted data collection from a single monitor (with Ethernet pass-through). Typically, one wall-plate is required per monitoring location.
- PeriWatch Dual gang wall-plate – For bedside wall mounted data collection from up to two fetal monitors (with Ethernet pass-through). Dual gang wall-plates are optional.

Fetal Monitor Compatibility

Vendor	Protocol compatibility	Type	Interface card / Firmware	Description
Philips	1371	* 1350A and B * 50XM series	M1350-66532 or M1350-66536 * Firmware: C01.03 and above	DB9 pin serial connector for RS232 interface. Firmware software must support option C13.
Philips	1371	Avalon FM20 Avalon FM30 Avalon FM40 Avalon FM50	Firmware: F.0X and above.	DB9 pin serial connector for RS232 interface. Firmware software must support option C13.
GE/Corometrics	1371	118	J09-J10	DB9 RS232 serial interface
GE/Corometrics	1371	120/170/250 Series	J09-J10-J11	RJ11 RS232 serial interface

* Philips 1350 A/B and 50XM are presently out of support by Philips. Although the serial protocol is still supported, PeriGen cannot be held responsible for known issues with these fetal monitors with firmware versions lower than **C01.03**. Known issues include a very high frequency of SP02 measurements sent to the electronic tracing when the paper recorder door is open and no paper is in the-0 tray.