



Server, Client Computer and Network Specifications

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Server, Client Computer and Network Specifications

Please refer to Figures 1 (900 MHz), 2 (Wi-Fi G4) and 3 (Cloud-Hosted) for a system overview of the CheckPoint system.

Minimum Server (System Host) Specifications

- Operating Systems - All versions as listed below.

O/S	32-bit	64-bit
Windows XP	✓	N/A
Windows Server 2003	✓	Not Supported
Windows Server 2008	✓	✓
Windows Data Center 2008	✓	✓
Windows Server 2012	✓	✓
Windows 7	✓	✓
Windows 8	✓	✓

- *O/S Exception:* The CheckPoint thin client is not supported on 64-bit Windows Server 2003
- 32-bit processor RAM: **4 GB RAM required**
- 64-bit processor RAM: **4 GB RAM minimum** / 8 GB or greater RAM preferred
- 25 GB available hard drive space or VM allocation
- 32-bit Dual Core or better processor (64-bit OK)
- Allocation of NIC IP address, gateway, subnet mask and DNS if provided by Mesa Monitoring
- A dual-NIC configuration is NOT supported on a CheckPoint server
- Minimum disk I/O speed required. Ideal minimum random read speed of 4,000 IOPS and sequential read and write speeds of 520 MB/s and 400 MB/s, respectively, preferred.
- Minimum server specifications are applicable for installations of up to 500 sensors. Mesa Monitoring project management will provide specifications for installations exceeding 500 sensors



System Host Options

- Customer-provided physical or virtual machine server
- Mesa-provided physical server
- Cloud-hosted. On-site network appliance (**HP t510 Thin Client**, or equivalent, is recommended) required with G4 (900 MHz) system. Appliance is **not needed** with 802.11 b/g Wi-Fi G4 system.

Required Server (System Host) Software:

- .NET frameworks 1.1, 3.5 and 4.0
- Windows Installer v4.5 or later pre-installed
- SQL Server Management Studio Express

Additional Server (System Host) Configuration Requirements

- Server firewall will need to be disabled or SQL exception added to allow SQL server to communicate to outside clients
- For Thin Client Webserver installation, IIS will need to be installed. For Windows XP, installing IIS requires a Windows XP disc
- ASP enabled to support CheckPoint thin client
- A dedicated server or virtual machine for all CheckPoint software is highly recommended

SQL Database

- SQL Server 2008 Express R2 with a 10 GB database limit is automatically installed. For a 100-sensor system, the database grows *approximately* 0.7 GB (700 MB) per year
- For installations of 200+ sensors, install full SQL Server and Mesa Monitoring will configure it to work with the Checkpoint Database
- Checkpoint can perform scheduled database backups, which can then copied or moved to a remote drive with a third-party utility
- If a separate SQL server is used to host the SQL database, it must have sufficient bandwidth and resources to host a resource-intensive application and support a potentially high number of simultaneous real-time database queries



Database Backup

- Mirroring of the database is advised
- The CheckPoint system can be set up to perform scheduled SQL backups, which can be configured to save to a remote drive via the normal SQL interface

Rich Client Computer

- Networked PC with Windows XP or later operating system
- Recommended minimum 1.0 GHz Intel-based (or equivalent) CPU
- Recommended minimum 1 GB RAM
- Recommended minimum 10 GB of available hard drive space for CheckPoint application

Thin Client Computer

- Networked PC with Windows XP or later operating system
- Recommended minimum 1.0 GHz Intel-based (or equivalent) CPU
- Recommended minimum 1 GB RAM
- Recommended minimum 10 GB of available hard drive space for CheckPoint application
- Internet Explorer 7 or higher (Firefox, Chrome and Safari are acceptable but not recommended)

CheckPoint 900 MHz Wireless Access Points

- Allocate IP address (static or DHCP reservation), gateway, and subnet mask
- Allow all TCP/IP, UDP, and ICMP traffic on all ports (minimum port 1324) between APs and the System Host
- Configure network ports to auto-negotiate or full duplex
- 120V AC to 6V / 1.75 A DC powered. Native Power-Over-Ethernet (POE) available
- Compatible with MobileAccess™ Distributed Antenna System (DAS)



CheckPoint Wi-Fi G4 Sensors

- Sensors communicate directly with facility Wi-Fi Access Points
- Provide Mesa Monitoring the following information:
 - SSID
 - Pre-Shared Key (PSK) or Passphrase (cannot contain the character "+")
 - Server IP address
 - Default mode: 802.11 b or g (802.11 n is not supported)
 - Supported Encryption modes:
 - WPA2-**Personal** - WEP, WPA, or WPA2
 - Under engineering development pending product release:
 - WPA2-**Enterprise** - Protected Extensible Authentication Protocol (PEAP) with RADIUS Server authentication.
 - Cipher type TKIP, AES, or Auto
 - Wi-Fi Survey maps of areas to be monitored to verify adequate coverage
 - Minimum sensor (client) received signal strength indicator (RSSI) of -60 dBm
 - Minimum signal-to-noise (SNR) ratio of 20 dB – 25 dB
 - Maximum DHCP connect time of 5 sec
- Reserve IP address range(s) dedicated to CheckPoint Wi-Fi G4 sensors (MAC addresses to be provided by Mesa Monitoring)
- A preconfigured Test Wi-Fi Sensor will be shipped prior to the scheduling of installation to verify Wi-Fi signal strength in areas to be monitored and a successful network connection is made
- Wi-Fi device keep alive period must be at 20 minutes or greater to accommodate 15 min sensor transmission period.
- If CheckPoint is cloud-hosted:
 - Wi-Fi G4 sensors will connect directly with the cloud server and a network appliance will not be required.
 - A network appliance **will** be required if a network alert lamp is implemented.
 - **TCP 1324** – Raw temperature data sent to the cloud server
 - **TCP/IP 3389** – User interface via Microsoft Remote Desktop
 - **SSL 443** - Encrypted user login via a Web browser and URL beginning with "https://"



CheckPoint IP-based Alert Lamp

- Allocate IP address (static or DHCP reservation), gateway, and subnet mask. Must be on the same gateway as a nearby networked PC to complete lamp setup and test
- Allow all TCP/IP, UDP, and ICMP traffic on all ports (minimum port 1324) between Alert Lamp and the System Host
- Configure network ports to auto-negotiate or full duplex
- 120V AC powered

VPN Connectivity from System Host to Mesa Monitoring Customer Support

- Provide vendor application forms to establish a VPN account for initial system setup and ongoing technical support
- Specify organization's policies and vendor security requirements

System and 900 MHz Wireless Security

- CheckPoint's 900 MHz secure wireless system is a two-way (closed-loop), proprietary design with non-published channelization, waveforms, modulation, and bit patterns
- The wireless communication system transmits temperature and vital parameter information only. No patient records or other protected information is transmitted
- The 900 MHz wireless system cannot be configured over the air, and all system configuration settings and changes can only be made from an administrator account on the application server or user terminal with authenticated credentials
- A full audit log of all system configuration changes is permanently recorded per FDA 21 CFR Part 11 electronic records requirement
- System access is controlled with user accounts with passwords. Access control and the password security policy is managed by the CheckPoint system administrator
- Please refer to document **D1631** -*Security Analysis for the CheckPoint System* for additional information



Phone Call Alert (Text-to-Speech) Option

CheckPoint supports the option of utilizing a third-party service provider to convert a text-based email alert to a phone call placed to designated recipients. The recommended third-party service provider, Fax2me.com⁽¹⁾, will receive an email from the CheckPoint system and convert the text in the received email to speech. The recipient of the phone call hears the message as it is read and enunciated.

Fax2me.com[®] Website: <http://www.fax2me.com/fx/email-to-call.jsp>

Customers will need to purchase services⁽²⁾ directly from Fax2me, and Mesa Monitoring will assist with the initial setup to establish the capability to place phone call alerts.

CheckPoint software V9.3.X, or higher, is required to support Phone Call Alerting.

Example of Email Text Read During Phone Call Alert:

Area: CHEM - LAB 3. Equipment FRZ012.

Temperature 12.5 °C above max. of 8.0 °C since 12/11/2012. 10:14:18 AM.

Notes:

(1) Fax2me.com is an independent third party services provider with no affiliation with Mesa Monitoring.

(2) Disclaimer: Any issues with the Fax2Me.com[®] service itself would be outside Mesa Monitoring's domain and resolution would need to be made directly with the service provider.



External Modem Recommendation

In addition to alerting users via a local alert, Email, pager, and mobile phone, CheckPoint supports an external modem that can place a phone call to a recipient's phone. Mesa Monitoring currently does not supply or service external modems, but customers may purchase a third-party modem to connect to their physical server⁽³⁾.

External Modem Compatibility Matrix

Server Operating System	32-bit	64-bit	Zoom V.92 Model 3095	Way2Call USB Pro (HD00PRGR01) ⁽⁴⁾
Windows XP	√		C	C
Windows Server 2003	√	√	C	C
Windows Server 2008 R2	√	√		C
Windows Vista	√	√		C
Windows 7	√	√		C

C – Compatible

Notes:

(3) An external modem is not recommended for a virtual machine.

(4) CheckPoint supports the **Way2call Hi-Phone Desktop Pro** (HD00PRGR01) modem.

<http://www.way2call.com/scripts/prodList.asp?idCategory=22>

Note that CheckPoint is **NOT** compatible with the Way2Call Standard USB Modem, model HD00PRGR02.



SMTP Server

CheckPoint requires an SMTP server to process alerts sent via email for delivery to email accounts and companies that offer paging, mobile phone, and text-to-speech services. If an SMTP server is not available, a third party email processor such as Turbo SMTP⁽⁵⁾ can be utilized to process outbound CheckPoint email alerts.

Turbo SMTP® Website: <http://www.serversmtp.com/>

Notes:

(5) Turbo SMTP® is an independent third party services provider with no affiliation with Mesa Monitoring.

Disclaimer: Any issues with the Turbo SMTP® service itself would be outside Mesa Monitoring's domain and resolution would need to be made directly with the service provider.

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CHECKPOINT.

WIRELESS MONITORING SOLUTION



Figure 1 – 900 MHz G4 CheckPoint System with Local Server or VM

CHECKPOINT.

WIRELESS MONITORING SOLUTION

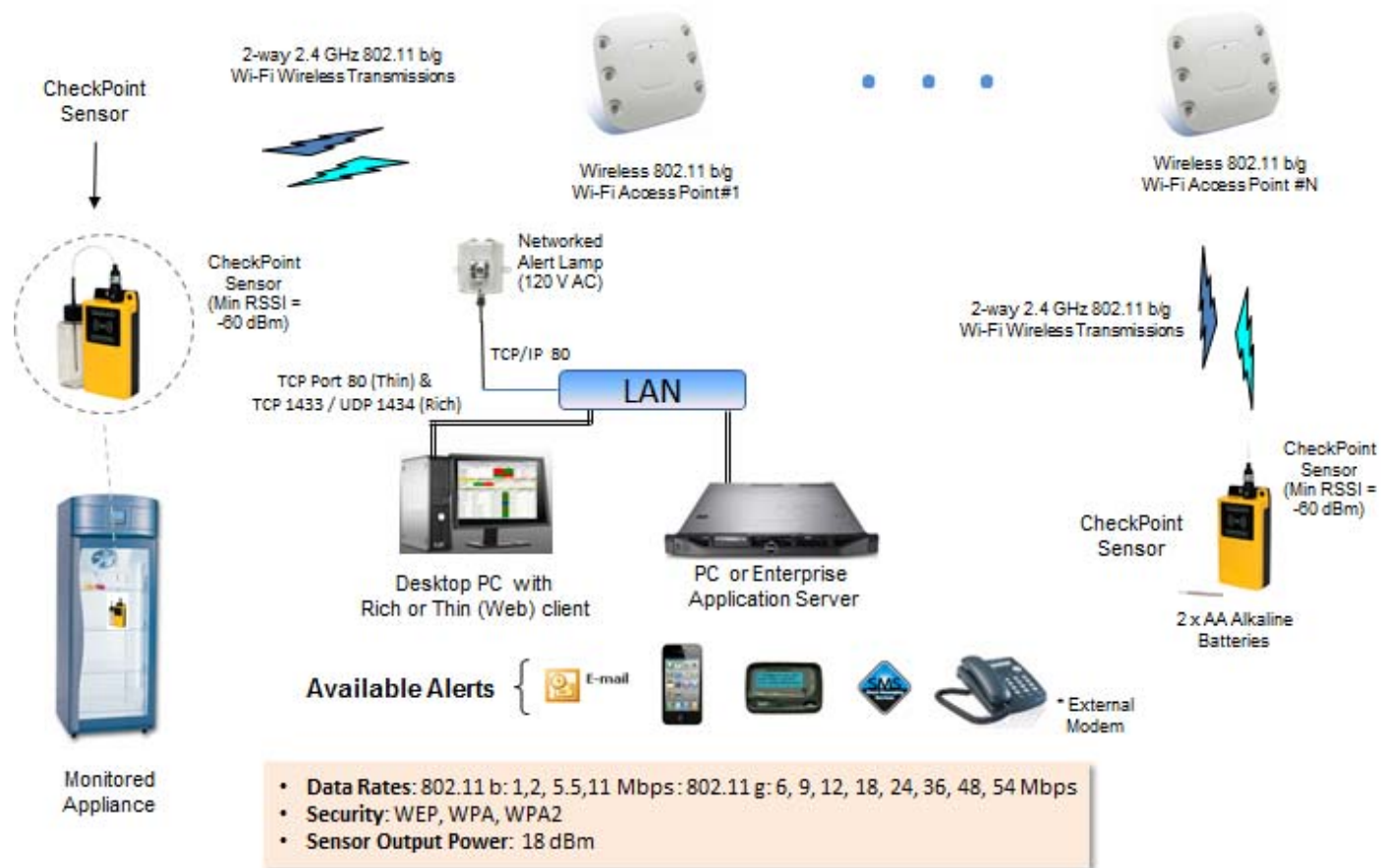


Figure 2 – Wi-Fi G4 CheckPoint System with Local Server or VM

CHECKPOINT.

WIRELESS MONITORING SOLUTION

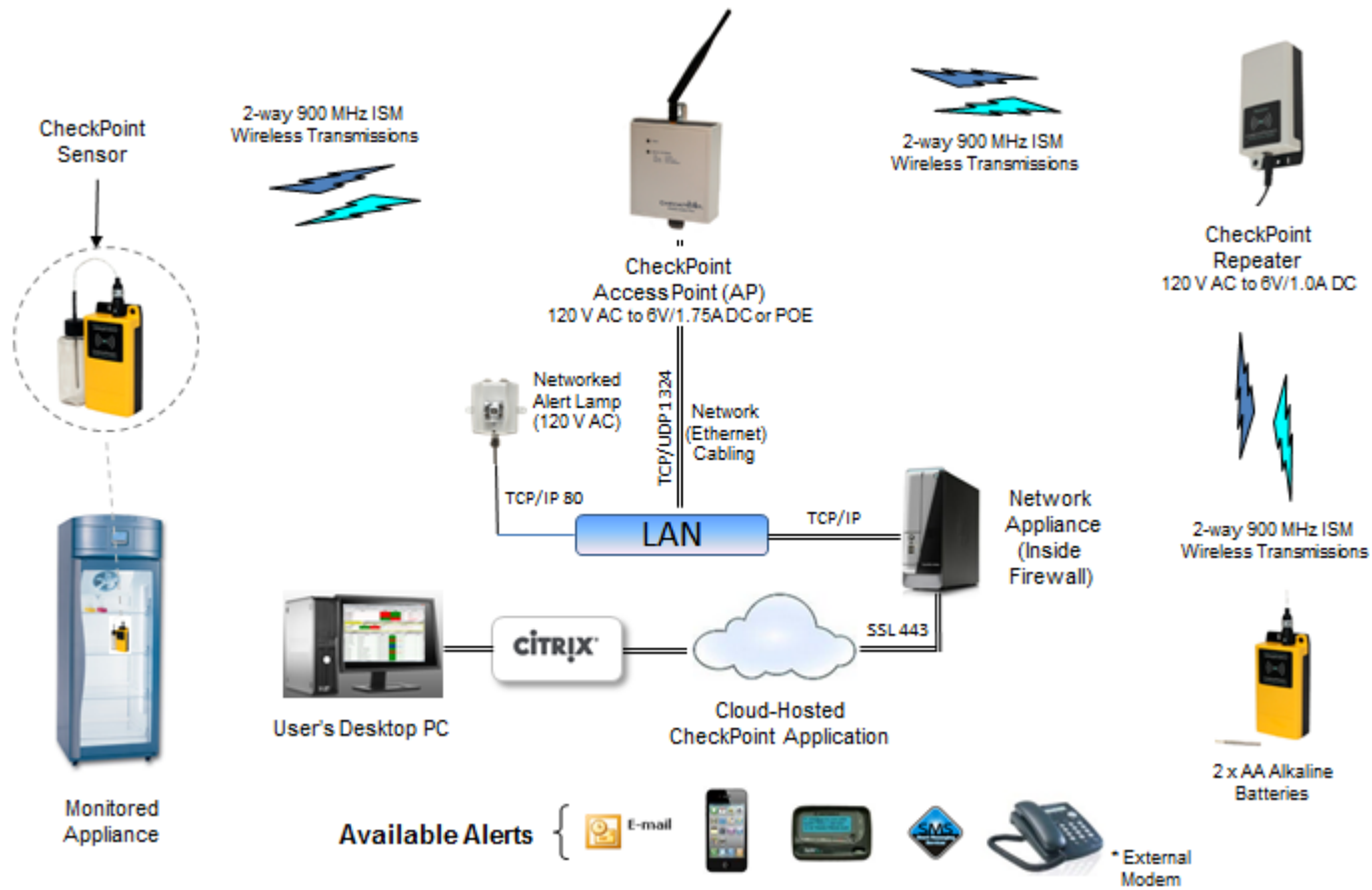


Figure 3 – Cloud-Hosted G4 CheckPoint

CHECKPOINT.

WIRELESS MONITORING SOLUTION



Figure 4 - Cloud-Hosted Wi-Fi G4 CheckPoint