NBIMC Niagara N4 Supervisor VM & SQL Archive Requirements

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Prepared for	NBIMC IT / Facilities	Prepared by	AME, Inc.

1. Recommended infrastructure (what to provision)

Supervisor VM (Tier B) is the recommended baseline for NBIMC. Deploy a separate SQL Archive VM if long-term retention or reporting load is required.

Supervisor VM - Tier B (Recommended)	Requirement
Operating system (recommended)	64-bit Windows Server 2022 or Windows Server 2025
CPU allocation	8 vCPU (server-class; avoid CPU overcommit)
CPU class (vendor guidance)	Intel Xeon 4th Gen or better; Intel Core i-series 12th Gen or better; AMD Ryzen 5 Gen 3 or better
Memory	64 GB RAM (reserved)
Storage	512 GB SSD/NVMe (OS + Niagara + local history + backups)
NIC	1 Gbps virtual NIC (vNIC), mapped to a 1 Gbps or faster host uplink
Notes	If local history retention is increased or reporting is heavy, increase disk and/or separate SQL archive (Section 3).

SQL Archive VM (Optional, recommended for long-term history)

- **Use when:** Long retention, short intervals, high history counts, or when you want to offload history storage/queries from the Supervisor. Best practice is a separate SQL VM to isolate disk I/O and backups from the Niagara JVM (Section 3).
- **Deploy as separate VM:** Separate VM to isolate disk I/O and prevent Supervisor UI/driver slowdown
- **OS/DB:** For Microsoft SQL Server 2022, use Windows Server 2022 (preferred; 2019/2016 supported per policy). For MySQL, use supported MySQL 8.x versions per Niagara 4.15 database support table (avoid assuming versions outside Tridium's list). Database ports: 1433/tcp (SQL Server) or 3306/tcp (MySQL). [R2]

OS	CPU	RAM	Disk
MS SQL Server 2022 or MySQL 8.4/9.0	8 vCPU	32 GB	1 TB SSD / 2TB SSD

2. Current sizing inputs (from Station Metrics export)

Metric	Value
Facility type	Hospital / critical facility
Supervisor version	Niagara 4.15 (Supervisor)
Active field controllers	45 total (TITAN/QNX: 22; WEBX: 19; HON: 4)
Devices	1,499
Points	55,298
Histories	109,414 total (Supervisor: 90,063; field: 19,351)

3. Why this sizing (drivers and headroom)

- History load is the primary driver: counts + interval + retention directly impact CPU scheduling and disk I/O.
- Reporting/graphics and concurrent Workbench sessions increase RAM pressure and can cause UI lag when under-sized.
- Driver mix/polling (BACnet/Modbus/MQTT/SNMP and scheduled exports) increases thread contention and CPU utilization.
- Backups/export staging on the Supervisor consume disk and can fragment I/O if storage is constrained.

Storage growth sanity check (trend interval multiplier)

Trend interval	Samples per day	Relative storage growth	Notes
15 min	96	1x	Typical for comfort systems
5 min	288	3x	Common for critical areas
1 min	1440	15x	Aggressive

4. Network / security (minimum ports to allow)

Service	Port	Purpose
https	443/tcp	Web UI (TLS)
foxs	4911/tcp	Workbench station connection (TLS)
platformtls	5011/tcp	Platform administration (TLS)
SMTP (outbound)	25/465/587	Email alarms/notifications (per IT SMTP policy)

Note: Default Niagara ports can be changed during commissioning. Firewall rules must match commissioned ports.

5. Virtualization / operational notes (avoid license and performance issues)

- Niagara licensing is tied to host ID. For VMs: use a static MAC address and avoid virtual NIC changes.
- Avoid memory ballooning/swapping for Supervisor and SQL VMs; use reservations/guaranteed memory.
- Use SSD/NVMe-backed datastores. For SQL: separate OS and data onto different virtual disks when possible.

6. Supervisor VM sizing tiers

Tier A	Tier B	Tier C
vCPU: 4-6 vCPU	**vCPU:** 8-16 vCPU	**vCPU:** 16 vCPU
Tier A/B/C CPU Class (Vendor Guidance): Intel Xeon 4th Gen+ (Sapphire Rapids); Core i 12th Gen+ (Alder Lake); AMD Ryzen 5 Gen 3+ (Zen 2)		
RAM: 16 GB min / 32 GB recommended **Storage:** 512 GB SSD minimum **Operating System:** Windows 11 x64-bit; Windows Server 2025	**RAM:** 32 GB min / 64 GB recommended **Storage:** 512 GB SSD minimum **Operating System:** Windows Server 2022 or Windows Server 2025	**RAM:** 64 GB recommended **Storage:** 1TB SSD minimum **Operating System:** Windows Server 2022 or Windows Server 2025
Recommendation: Use Windows Server 2022 or 2025 for the Supervisor VM unless project standards require Linux.		

7. References (official docs)

- [R1] Tridium - Niagara 4 Supervisor Datasheet (2025-0011). Platform requirements include CPU class, memory, SSD size, and OS list.
  https://www.tridium.com/content/dam/tridium/en/documents/document-lists/niagara/tri-niagara4-supervisor-datasheet-en-2025-0011.pdf
- [R2] Niagara 4 Installation Guide (March 12, 2025 / updated OS + DB tables). Supported OS and supported relational databases.
  https://downloads.onesight.solutions/Tridium/Niagara%204%20Documents/docN4Install.pdf
- [R3] Niagara Station Security Guide (March 10, 2025). Default TCP/IP ports table.
  https://downloads.onesight.solutions/Tridium/Niagara%204%20Documents/docStationSecurity.pdf
- [R4] Niagara 4 Hardening Guide (January 17, 2025). TLS-only recommendations and port notes.
  https://www.tridium.com/content/dam/tridium/en/documents/document-lists/niagara/tri-Niagara4-Hardening-Guide-en-2025.pdf