- **Database Server** (Specs in Table 1)

*Table 1: Server Requirements*

| Function | Processor (Cores) | Memory (GB) | Storage (GB) | Operating System |
|---|---|---|---|---|
| **Ignition Front-End Gateway** | 12 | 32 | 128 | Ubuntu Server 24.04.1 LTS |
| **Ignition Back-End Gateway** | 12 | 32 | 128 | Ubuntu Server 24.04.1 LTS |
| **PostgreSQL Database** | 4 | 8 | 1500 | Ubuntu Server 24.04.1 LTS |
| **Microsoft SQL Server 2022** | 4 | 8 | 1500 | Ubuntu Server 24.04.1 LTS |
| **Kepware Server** | Negligible | Negligible | Negligible | Windows Server 2025 |
| **ToolsTalk Server** | 12 | 16 | 100 | Windows Server 2025 |
| **ToolsNet Server** | 8 | 32 | 1500 | Windows Server 2025 |

System specifications are chosen according to following sizing guides:

- Inductive Automation's Ignition server sizing recommendations
- Sepasoft's MES server sizing architecture guide
- Atlas Copco's ToolsTalk 2 installation guidelines
- Atlas Copco's ToolsNet 8 installation guidelines
- PTC's Kepware+ system requirements

Estimations account for 125%+ processing power and networking bandwidth to support 120 workstations, 150 HMI clients, and numerous devices. Server storage capacity is based on a maximum data retention policy of two (2) years.

Sizing estimations do not account for future applications or additions to the MES architecture. To properly account for expanded uses, specifications should be increased at Figure AI's discretion.

### Identity Provider

To provide user authentication and role assignments to Figure AI users, the existing Figure AI Okta identity provider will be integrated and used as Ignition's identity provider. OIDC is recommended as a protocol for identity provider integration due to its advantages in authentication for mobile devices. If OIDC is not permitted by Figure AI requirements, SAML integration is additionally available.

Okta should only need the redirect URI of the gateway that will be used to perform testing, which is http://[HOST]:[PORT]/data/federate/callback/oidc. For the sandbox gateway, this will be http://192.168.4.6:8088/data/federate/callback/oidc. Once Ignition is added as an application in Okta, Ignition just needs the Client ID and Client Secret of that application to continue testing.

### Software Version Control

- **Action:** Create a Git repository within the Figure repo for manufacturing software revision control, dns server configuration and security certification installation (**April, Jared, Damien**).
- **Access:** Git repo will be shared with MES integrators.

### CI/CD and Server Maintenance

- **Action:** Jared and Damien to establish and maintain CI/CD pipelines and server environments.

### Backup Strategy

- **Current Backup Solution:**
  - Azure Backup will be used for **server and database backups** (**Managed by Damien and Jared**).
- **Rubrik Backup:**
  - Currently on hold; noted by Michael that **Rubrik is air-gapped**, unlike standard Azure backup solutions.

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