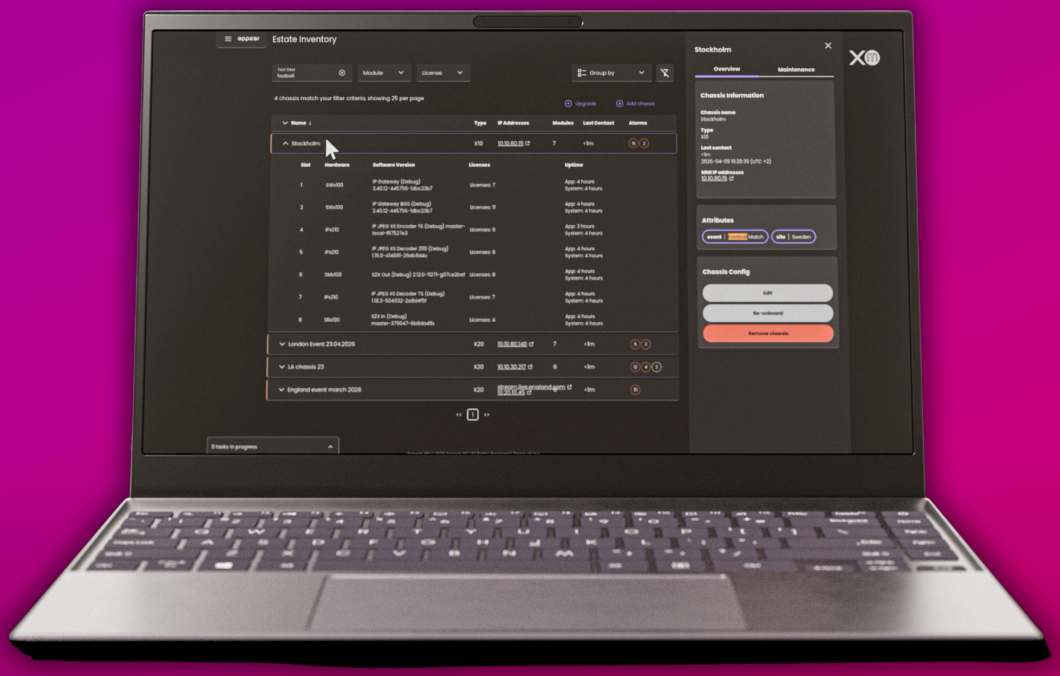
appear.net



Technical Specifications

Version 1.0 | April 2026

Overview

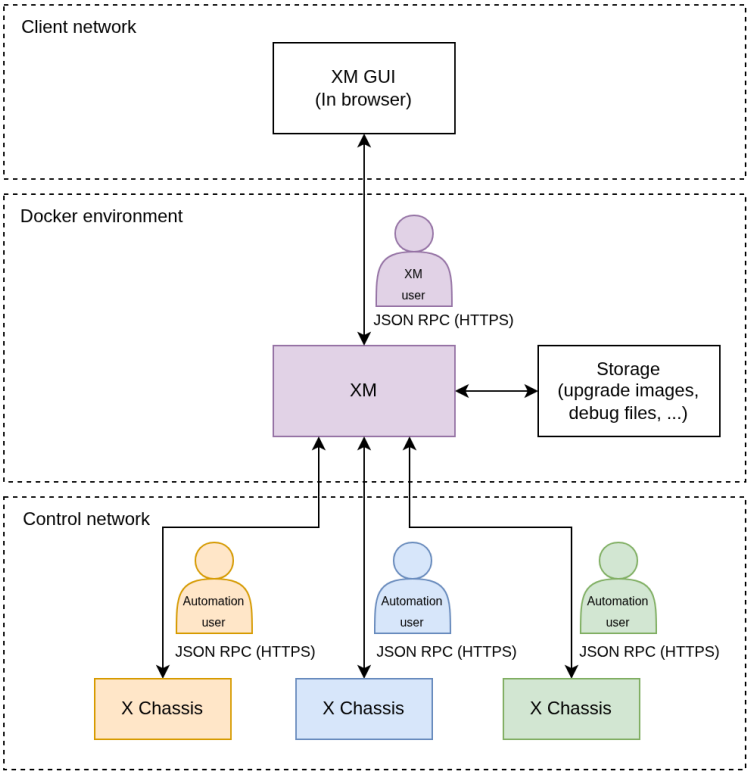
XM is a self-hosted management tool designed to simplify the administration of estates of Appear chassis. Running as a Docker container, XM provides a centralised interface for onboarding chassis, monitoring estate health, and performing essential maintenance tasks such as configuration exports, license management, and software upgrades

Purpose

Enable broadcast operators and engineers to manage multiple chassis efficiently.
Reduce operational complexity and risk through unified visibility and streamlined workflows.

Deployment Model

XM is only self-hosted and runs in a Docker environment with network access to Appear chassis.
No cloud or SaaS option is currently planned.



System Overview

XM communicates securely with Appear chassis over HTTPS and offers:

Estate Overview: Inventory of all chassis with status and filtering options.
Onboarding: IP-based chassis registration with attribute tagging.
Maintenance Tools: Export configurations, debug logs, and inventory files.
License Management: View and install licenses per chassis.
Software Upgrade: Upload and apply locally stored images across multiple chassis.
Alarm Overview: Summarised alarms by severity for quick prioritisation.
User Management: Local authentication with role-based permissions (Observer, Expert, Admin).

Core Features

User Management & Permissions	• Local username/password authentication.
	• Role-based access control (RBAC) with three roles:
	  ◦ Admin: Full access including user and attribute management.
	  ◦ Expert: Can onboard/edit chassis, assign attributes, start upgrades, install licenses.
	  ◦ Observer: Read-only access; can download config, inventory, and debug files.

Onboarding	• Onboard chassis using primary and secondary IP addresses. • Assign attributes or keys for easy grouping and identification.

Estate Overview	• Inventory dashboard showing all chassis with last contact status. • Filter by text, module, or license; group by attributes. • Direct login link to chassis and ability to view module details.
Maintenance	• Export configuration files, inventory lists, and debug logs for troubleshooting or audits.
License Maintenance	• View installed licenses by module. • Install new licenses per chassis directly from the dashboard.
Software Upgrade	• Manual upgrade using locally stored images. • Bulk upgrades supported across multiple chassis. • No rollback capability.
Alarm Overview	• Display aggregated number of alarms per chassis grouped by severity. • View-only (no alarm details or notifications).

Deployment Details

Hosting Requirements	Docker: • Docker Engine (latest version). • Docker Compose plugin (latest version).

Minimum System Requirements	• CPU: 1 vCPU (Intel Core i3-10100 or equivalent). • RAM: 512 MB minimum. • Storage: Per chassis: - Logs: up to 3 GB - User/chassis info: ~50 MB - Debug files: 150–400 MB - Config exports: ~10 MB • Per instance: - Software images: 250–500 MB each (no upload limit). • Example estimates: - Small estate (30 chassis): 66–160 GB - Large estate (500 chassis): 0.9–2.275 TB
Browser Recommendations	• Supported resolutions: 1920×1080, 1280×1024 • Recommended browsers: Mozilla Firefox (preferred), Google Chrome supported
Networking Requirements	• Protocol: HTTPS (JSON-RPC over HTTPS) • Ports: ◦ X chassis: TCP 443 ◦ XM: Ephemeral ports ≥1024 • Direction: AEM initiates all connections to chassis • Traffic: Allow outbound HTTPS from XM to chassis; allow return traffic

Supported Scale

Technically **unlimited chassis**, but storage and compute requirements increase with estate size.

Integration

API	• JSON-RPC API for estate and user management (OpenRPC spec included in the product). • Supports onboarding, inventory retrieval, license installation, software upgrades, and attribute management. • Authentication: Bearer token (JWT).
SNMP	No SNMP support currently.

Licensing

XM is included with a valid SLA support subscription.
No limit on the number of XM instances per customer with SLA.

Security

Sensitive data encrypted using AES-256-GCM.
HTTPS enabled (self-signed certificates by default; customer can replace).
RBAC implemented with three roles.
Password policy: Minimum 8 characters.

Benefits

Operational Efficiency: Centralised management reduces manual effort.
Risk Reduction: Unified visibility and proactive alarm monitoring minimise downtime.
Scalability: Designed to handle estates from tens to hundreds of chassis.

Contact

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