

XYZ IoT Manufactr



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What is Manufactr?

XYZ IoT Manufactr provides a one-stop solution for the Smart Manufacturing. This means that customers don't have to worry about connecting various parts of a complex systems. XYZ IoT Manufactr features and applications can be customized to match the business processes, requirements, and integrated into the company's database or backend systems. XYZ IoT Manufactr solution provides customized solutions to meet customer needs. The implementation of this solution begins with a site visit to assess the field conditions in order to provide the right Smart Manufacturing solutions and a suitable roadmap.

Smart Manufacturing OEE

OEE (Overall Equipment Effectiveness) is the gold standard for measuring manufacturing productivity. Simply put – it identifies the percentage of manufacturing time that is truly productive. An OEE score of 100% means you are manufacturing only Good Parts, as fast as possible, with no Stop Time. In the language of OEE that means 100% Quality (only Good Parts), 100% Performance (as fast as possible), and 100% Availability (no Stop Time).

Measuring OEE is a manufacturing best practice. By measuring OEE and the underlying losses, you will gain important insights on how to systematically improve your manufacturing process. OEE is the single best metric for identifying losses, benchmarking progress, and improving the productivity of manufacturing equipment (i.e., eliminating waste).

Increase production output through monitoring machine performance, production results, and machine utilization:

- 80% uptime availability
- 85% performance improvement
- 85% better goods production increase



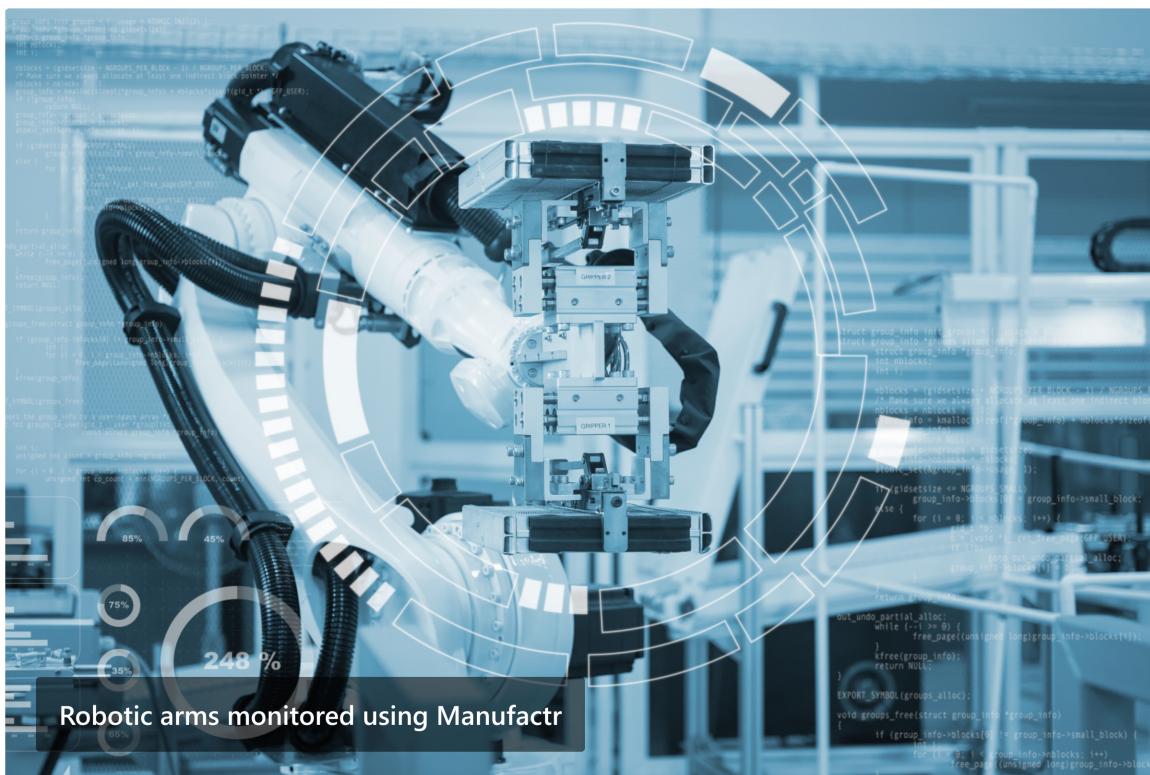
An oil refinery using our solution.

Smart Manufacturing CMMS

A [computerized maintenance management system \(CMMS\)](#) is software that centralizes maintenance information and facilitates the processes of maintenance operations.

A CMMS helps optimize the use and availability of physical equipment such as vehicles, machinery, communications, plant infrastructures and other assets. Also referred to as CMMIS or computerized maintenance management information system, CMMS systems serve a crucial role in various industries. These industries include manufacturing, oil and gas production, power generation, construction, transportation and other industries, where physical infrastructure is critical.

Regular machine maintenance can help improve machine performance and prevent damage.



Smart Manufacturing Smart Warehouse

Monitor the movement of assets in and out of the warehouse for efficient management of operations inventory, with 30% increase of inventory process. Monitoring and managing inventory optimally to minimize the risk of shortages or excess stock, with 20% of accuracy improvement. Managing inventory to ensure smooth production processes and enhance distribution quality. Simplifying the process of receiving and checking incoming or outgoing goods using labeling or barcode scanners. XYZ IoT Manufactr facilitating warehouse operations through digitalization that can enhance warehouse system accuracy via data collection, tracking, and warehouse activity monitoring automation tools.

Features

1. IoT platform as-a-service
2. Hosted and fully managed by XYZ IoT team
3. Free plan for up to 5 devices
4. Unlimited connectivity
5. device management

Pricing

Up to 5 devices: \$9.99/month
Up to 15 devices: \$14.99/month
Up to 100 devices: \$79.99/month
2 CPU, 2 GB RAM, 40 Gb disk space \$15/month

Troubleshooting guidelines

Troubleshooting an IoT solution requires a systematic approach that addresses the potential issues across hardware, software, connectivity, and data management. Since IoT systems involve multiple components—sensors, gateways, cloud platforms, connectivity, and user applications—understanding where problems occur is crucial for effective resolution. Here's a step-by-step guide to troubleshooting IoT solution problems.

1. Identify the Problem

- **Symptoms:** Start by identifying the specific issue—whether it's a loss of data, device malfunction, connectivity loss, or irregularities in the data being transmitted.
- **Scope:** Determine if the problem affects a single device or if it's a broader issue impacting multiple devices or the entire system.
- **Error Logs and Alerts:** Check for any alerts, error messages, or logs in the system to provide clues about what might have gone wrong.

2. Check Hardware and Sensors

- **Power Supply:** Ensure that all IoT devices, sensors, gateways, and controllers are properly powered. This includes checking battery levels (for battery-powered devices) or confirming that wired power supplies are connected.
- **Sensor Condition:** Inspect the physical condition of sensors and devices. Look for damage, loose connections, or faulty installations that could be affecting performance.
- **Calibration:** Ensure that sensors are calibrated correctly. Inaccurate readings can be a result of miscalibration.
- **Firmware/Software Updates:** Ensure that all devices are running the latest firmware and software versions. Outdated software can cause

performance issues or prevent devices from communicating properly.

3. Test Connectivity

- **Network Status:** Verify the status of the network that connects the IoT devices. Check if there are any issues with the network (Wi-Fi, cellular, LoRaWAN, etc.) that could be causing interruptions.
- **Signal Strength:** For wireless devices, check the signal strength between the sensors and the gateway. Weak or fluctuating signals could lead to intermittent data transmission.
- **Network Configuration:** Ensure that the correct network settings (e.g., IP addresses, ports) are configured on both the IoT devices and the gateways. Misconfigured network settings can prevent devices from communicating with the cloud.
- **Gateway Functionality:** Verify that gateways are operational and capable of transmitting data from the devices to the cloud. If the gateway is malfunctioning, it could prevent communication between devices and the backend system.
- **Firewalls and Security Settings:** Ensure that firewalls, security protocols, or other restrictions on the network aren't blocking communication between devices and the cloud.

4. Check Data Flow and Cloud Integration

- **Data Transmission:** Confirm that data is being transmitted from the devices to the cloud. This can often be done by reviewing data logs or observing real-time data on the cloud platform.
- **Data Integrity:** Check if the data being transmitted is complete and accurate. If there is missing or incorrect data, it could be a sign of issues with the sensors or data corruption during transmission.
- **Cloud Services Status:** Ensure that cloud services (e.g., data storage, analytics, processing) are operational. Downtime or service disruptions in cloud platforms could affect how data is processed or displayed.
- **APIs and Integrations:** If the IoT solution integrates with other systems (e.g., CRM, ERP, CMMS), verify that the APIs and integrations are functioning correctly. Changes in APIs, version mismatches, or incorrect API keys could break connectivity between systems.

5. Analyze Software and Application Issues

- **Platform or Application Bugs:** Check for bugs or issues in the IoT platform or applications that visualize or manage the IoT data. User interface problems, malfunctioning dashboards, or failure to display data can indicate software issues.
- **Configuration Settings:** Review the configuration settings within the platform. Ensure that devices, data thresholds, alerts, and notifications are correctly configured.
- **Update or Patch Software:** Verify whether there are available patches or updates for the IoT platform, application, or backend systems. Bugs or security vulnerabilities might be addressed by updating the software.

6. Review Security Protocols

- **Authentication and Access Control:** Ensure that all devices and users have proper authentication credentials. Misconfigured or expired credentials can prevent devices from connecting to the cloud.
- **Encryption:** Check if encryption protocols are properly configured for secure communication between devices and the cloud. Inconsistent encryption settings can block communication.
- **Security Breaches:** Investigate whether the system has encountered any security breaches or unauthorized access attempts, which might disrupt the IoT environment.

7. Test and Debug Devices

- **Device Restart:** Restart the IoT devices and gateways to see if this resolves the issue. Sometimes simple rebooting can fix communication or performance issues.
- **Isolate the Problem:** Test individual devices in isolation to identify whether the problem is related to a specific device or sensor. For example, disconnect devices one at a time to pinpoint the faulty device.
- **Reset to Factory Settings:** If the problem persists and cannot be diagnosed, consider resetting the device to its factory settings and reconfiguring it.

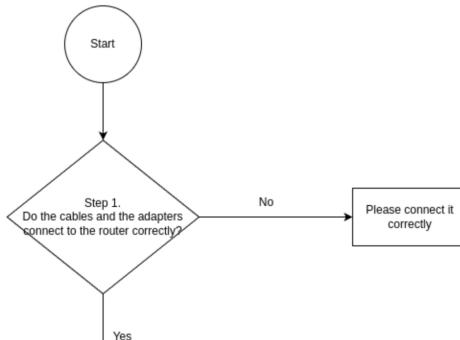
8. Check for Scalability or Capacity Issues

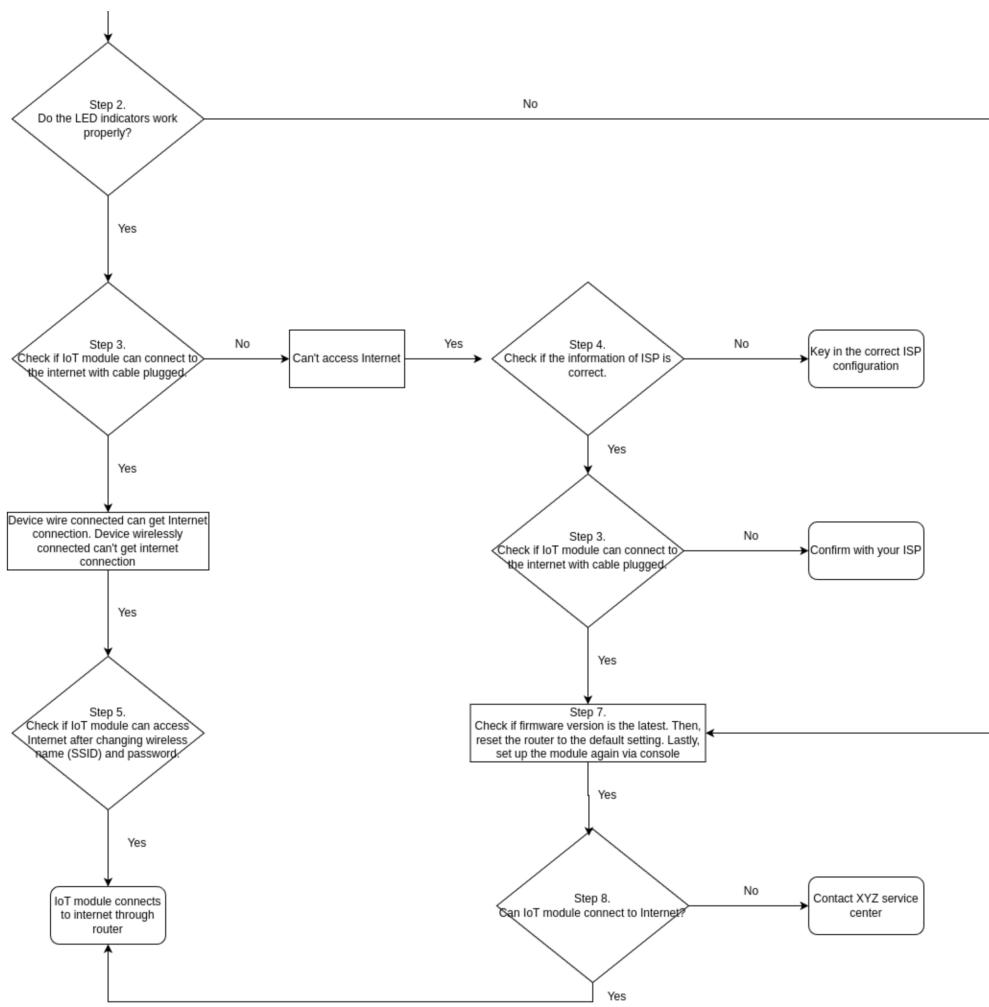
- **Device Overload:** If the IoT solution involves many devices, ensure that the network and cloud infrastructure can handle the number of connected devices. Overloading the system can lead to performance degradation or crashes.
- **Data Throughput:** Ensure that the system's data handling capabilities are sufficient for the volume of data being transmitted. High data throughput might overwhelm gateways or cloud processing, leading to delays or data loss.

9. Use Diagnostic Tools and Logs

- **Device Logs:** Many IoT devices generate logs that can provide insights into what's going wrong. Review these logs to look for errors, timeouts, or connection failures.
- **Platform Diagnostics:** Use any diagnostic tools or utilities provided by the IoT platform. These can help detect device status, connectivity issues, or misconfigurations.
- **Third-Party Tools:** Use network analysis or monitoring tools to check connectivity and traffic flow between devices and the cloud.

Troubleshooting Guide for IoT Manufacturer





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