IoTDeviceManager – User Guide / Admin Manual

Overview

The **IoTDeviceManager** application is a desktop simulation tool designed to monitor, control, and log IoT device activity in real time.
It allows users to:

- Add or remove devices,
- Toggle their online/offline status,
- Start or stop simulated telemetry communication, and
- View real-time logs of all device events.

1. Application Layout

Section	Description
Device List Panel	Displays all registered devices with their current online/offline status.
Action Buttons	Buttons for adding, updating, deleting, toggling device status, and starting/stopping simulation.
Log Viewer	Shows live logs of telemetry data, status changes, and system messages.

2. Core Features and Actions

A. Add Device

Purpose: Add a new IoT device into the system.
Steps:

1. Click **"Add"** on the toolbar.
2. A new device (e.g., *Device-4*) appears in the list.
3. The system automatically logs the action as "Add – Device-4 added".

Result:
A new device is added with default values (Type: Generic, Status: Online).

B. Update Device

Purpose: Edit or rename an existing device.
Steps:

1. Select the device in the list.
2. Click **“Update”**.
3. The device name will automatically append “(edited)” for demonstration.

Result:
The device’s name and log list are updated to reflect the change.

C. Delete Device

Purpose: Remove a device from the system.
Steps:

1. Select the device to remove.
2. Click **“Delete”**.
3. The device is removed, and a corresponding log entry is created.

Result:
Device disappears from the list and is logged as “Delete – [DeviceName] deleted”.

D. Toggle Device Status

Purpose: Change device online/offline status manually.
Steps:

1. Select any device.
2. Click **“Toggle Status”**.
3. The system switches its IsOnline property and updates the log view.

Example:

“ToggleStatus – Cam-02 is now Offline”

E. Start Simulation

Purpose: Begin real-time telemetry updates for all online devices.
Steps:

1. Click **“Start Simulation”**.
2. Devices start generating random temperature and humidity readings every 2 seconds.
3. Logs automatically update with entries like:

“Telemetry – Thermo-01: Temp=25.6°C, Humidity=48%”

F. Stop Simulation

Purpose: Pause telemetry updates and device communication.
Steps:

1. Click **“Stop Simulation”**.
2. The simulator timer stops; no new data appears in logs.

Result:
All real-time updates are paused safely without losing previous log data.

3. Viewing Logs

Location: Bottom section of the main window.
Content: Displays chronological entries for:

- Device added/updated/deleted actions
- Status toggles
- Telemetry readings
- Simulated disconnections and errors

Each log shows:

[Time] Action - Details

Example:

[14:22:10] Telemetry - Thermo-01: Temp=26.2°C, Humidity=55%

[14:22:12] Disconnected - Gate-Alpha lost connection (offline)

4. Administrator Tips

- **Auto Disconnect Simulation:** Some devices will randomly go offline (10% probability). This simulates network instability.
- **Restart Simulation:** If no logs appear, click **Stop Simulation → Start Simulation** again.
- **App Closure:** When exiting, the system automatically stops simulation and disposes resources safely.
- **Future Enhancement:** Real IoT communication can replace DeviceSimulator using **MQTT, REST API, or Serial Communication**.