



DIoTMS– Daimler Internet of Things Management Suite using e-tags

User Manual



Overview



- RFID Technology is evolving as a major technology enabler for identifying and tracking goods and assets
- The Daimler Internet of Things Management Suite(DIoTMS) is a web-based IoT solution using RFID technology
- DIoTMS is a Management tool designed to track, monitor and manage smart devices
- It is uniquely customizable to fit asset attribute information unique to any location
- Solution is not hardware dependent
- Ensures complete transparency of assets at any time
- Stores movement history of assets for a couple of months
- Gathers data about devices every couple of seconds
- Collects and displays the data in a dashboard

Standard Features

- Configuration and linking of gateways to locations
- Receive timely updates about devices (polling function/subscription to event streams)
- View Route Points / Tags
 - Search for racks, filter by Supplier, check for racks that are off route
 - Search for tags
 - Export function
- View Gateways
 - Capability to view functioning devices and those in error
- Manage alerts and notifications
- Mapping function and Layout
- Interface to external systems



How the e-tag system works

- e-tags serve as electronic transponders and must be fitted on the rack of the asset.
- gateways /e-tag readers must be configured and connected to the network
- When the asset passes a gate/building/door where a tag reader is configured, the e-tag is recognized and an event is automatically recorded and displayed on a dashboard
- Metadata (reader names and associated route points) is imported into the system via a file upload
- The etag process will then start to “poll” each reader every couple of seconds for all the reader events

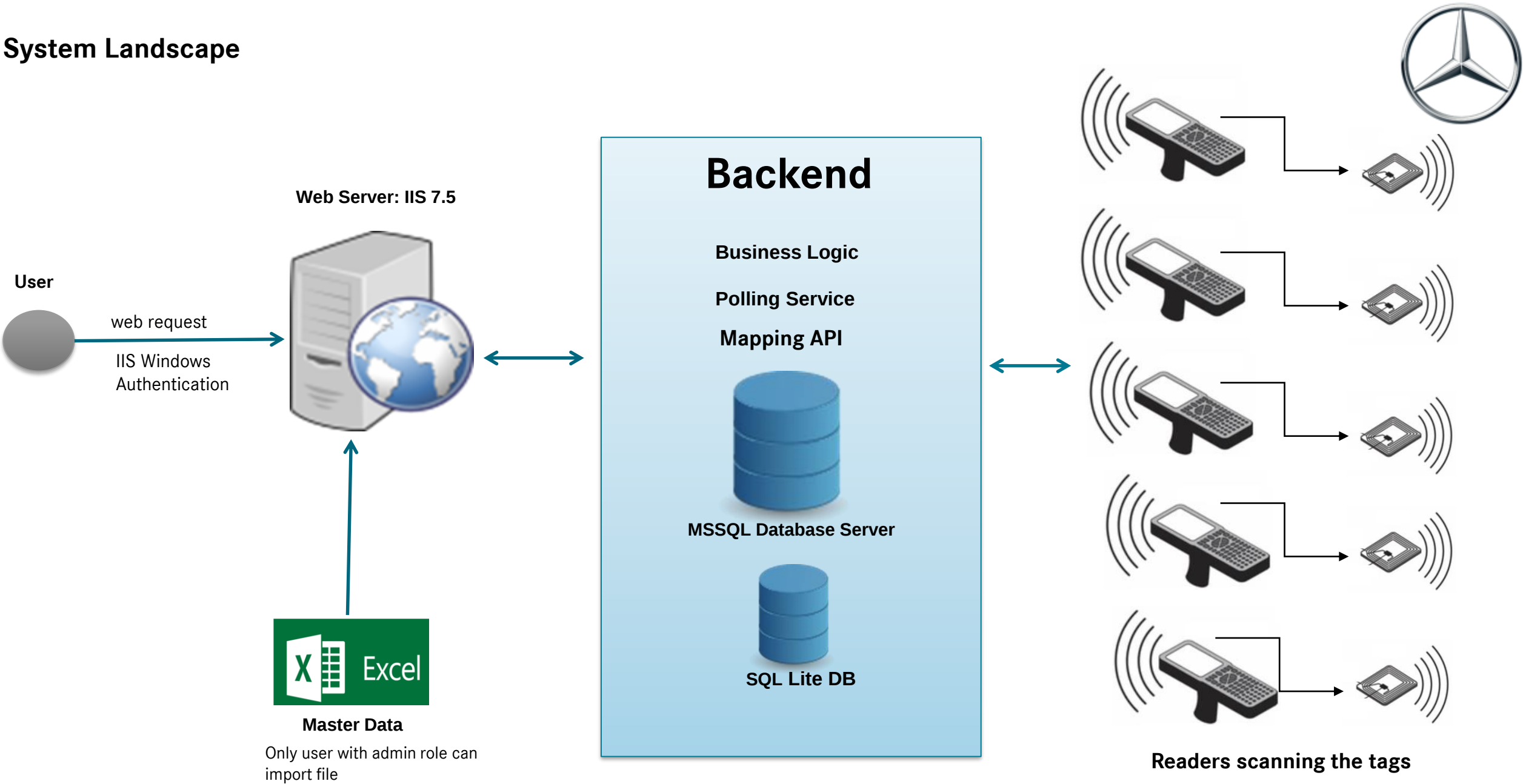


Benefits

- At MBSA the e-tag system is heavily used to track manufacturing assets in a production environment
- Provides real-time visibility of business operations
- Allows logistics to improve management of moveable assets and goods
- Increases operational efficiency by tracking goods from point of manufacture (i.e. from our suppliers) through to our manufacturing plants
- Reduces operational costs and improves productivity
- MBSA solution is easily customizable and can be integrated into any external system (i.e. SAP, non-SAP)



System Landscape





Device Specifications – MT-2 (MBSA Medium tags)

INTRODUCTION

The MT-2 is a durable, reusable, wireless Electronic visualisation display for the use in a Paperless Factory / Manufacturing environment. It is easily installed and configured via an Admin Console for individual or multiple tag updates.

Monitoring and Reporting (battery levels), Firmware versions.

eTag Template Management.

Easily communicates to backend SAP/ERP and Production systems via web services.

FEATURES

- 2.9" e-Ink Display
- Low Power Consumption
- Supports IEEE 802.15.4/868MHz/915MHz
- Bi-Direction Communication
- 2 Programmable Buttons
- Red and Green LEDs next to each button
- Integrated RFID chip
- Replaceable CR2477 Coin Cell Battery
- ± 3 second display update
- ± 2 second LED flash response
- Supports over-the-air updates (OTA)
- Barcode Scan-able display
- Coloured lens around Display (default Black, other colours optional)
- CE Certified
- FCC Certified



SPECIFICATIONS

Display	Screen Size	2.9"
	Resolution	296(V)*128(H) 130 dpi
System Controller	Colour	Black and White
	MCU	ARM Cortex-M3
	Flash	128KB
Storage	RAM	20KB
	Flash	4MB
	RAM	32KB
Network	Standard	Proprietary
	Frequency	868.1 – 868.5 MHz (EMEA) 915.0 – 915.5 MHz (NAFTA) (Optional HW specific)
	Channels	1-5 (868 MHz) 0-5 (915 MHz)
	Channel Separation	100KHz
	Maximum Field Strength	< 12dBm (868 MHz) < 93.77dB μ V (915 MHz)
	Receiver Sensitivity	-110dBm
	RF Data Rate	25 kbps
	Antenna	On-Board
	LEDs	2 x Red LED 4 x Green LED
Interface	Buttons	2 x Function Button
	RFID (ISO 18000-63 (Gen2), EPC Gen2)	860-960Mhz Passive or BAP (Optional)
Power	Battery	CR2477 x 3
Physical Characteristics	Dimensions (WxHxD)mm	111 x 60.6 x 22.2
	Weight	79g Excl. Batteries 110g with Batteries
Operating System		Proprietary RTOS

Device Specifications – GW-3 (MBSA etag gateway)



INTRODUCTION

The GW-3 is durable enough for the use in a Paperless Factory / Manufacturing environment and is composed of a Raspberry Pi 3B+ fitted with a PoE Hat and Plug-in RF Board.

It is easily installed and configured via an Admin Console Monitoring and Reporting via Admin Console.

SPECIFICATIONS

Raspberry Pi	3B+	
	Power	PoE
RF Board	Frequency Range	868MHz (300MHz ~ 930MHz)
	Transmission Power MAX	+14dbm
	Processor	Cortex M3 ARM 32 bit
	Memory	128KB
	RAM	20KB
	Standard	Proprietary
	Frequency	868.1 – 868.5 MHz (EMEA) 915.0 – 915.5 MHz (NAFTA) (Optional HW specific)
	Channels	1-5 (868 MHz) 0-5 (915 MHz)
	Channel Separation	100KHz
	Maximum Field Strength	< 12dBm (868 MHz) < 93.77dBμV (915 MHz)
	Receiver Sensitivity	-110dBm
	RF Data Rate	25 kbps
Physical Characteristics	Antenna	On-Board SMA Connector
	Dimensions (WxHxD)mm	
	Weight	



FEATURES

- Gateway operates via LAN
- PoE (Power over Ethernet) 48V
- 100Mb Ethernet Interface
- DHCP Enabled
- Supports IEEE 802.15.4/868MHz/915MHz RF
- Bi-Direction Communication
- Low Power Consumption
- Remotely manageable
- 2 LEDs (Power & Comms)
- Integrated Raspberry Pi 3 B+, PoE Hat, Texas Instrument CC1312R1 RF



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FCC Part 15 Notice

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

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- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

