

Identix IoT gateways Quick Start Guide

mPad+

rPad+

EZ230

EZ270

For HW versions 4.0.1 and above

Preliminary version 1.0.1

Table of Contents

Introduction	4
Initial setup	4
Connect the gateway to a power supply	4
Access the embedded WiFi hotspot	4
Log into the administration console	5
Network Configuration	6
Network WLAN – configuration	7
Network IP - configuration.....	7
Main Dashboard.....	8
Live Information.....	9
Live RAIN - RFID real time inventory.....	9
Live Beacons – realtime BLE beacons scanning.....	9
Network Status – network connection status	10
BLE Beacons Gateway configuration	10
BLE Beacons Scanning.....	10
BLE Beacons Filtering.....	11
RAIN RFID reader configuration.....	12
RAIN RFID Inventory.....	12
RAIN RFID Antenna & Power	13
RAIN RFID Reading Mode & Session.....	13
RAIN RFID Filtering.....	14
RAIN RFID Data Transformation	14
RAIN RFID Trigger.....	15
RAIN RFID Write Tag	16
Data Output configuration.....	17
This section allows you to define how the collected data is made available for applications and services. JSON-formatted data is sent to different channels, including MQTT brokers, HTTP servers and cloud services.....	17
Data Output General.....	17
Data Output MQTT	17
Data Output Sockets.....	18
Data Output HTTP POST.....	18
USB Port Configuration	19

identix

USB Port General	19
System Information and Management.....	19
System Info	19
System Admin	20
System – RAIN RFID Operating Region	20
System Date Time	21
System Ping.....	21
Help.....	22
Contact information.....	22

Introduction

The IoT gateways from Identix are based on the CONNECTIX operating system which is an embedded operating system that manages data capture and transfer from RAIN RFID tags and Bluetooth Beacons to business applications and cloud platforms.

Connectix offers a unified software interface, including programming APIs, for all devices, except for specific features of each hardware model.

Initial setup

Connect the gateway to a power supply

Identix mPad+, rPad+, EZ230 and EZ270 are powered through a standard “USB Type A” power brick.

All models can also communicate via USB to a Host computer running Windows, Linux, or any other OS. The Host USB port can be used not only for data communications but also as the power source for the gateways.

It is important to make sure the USB power supply (either an external power brick or the Host computer USB port) has enough capacity to drive the gateway.

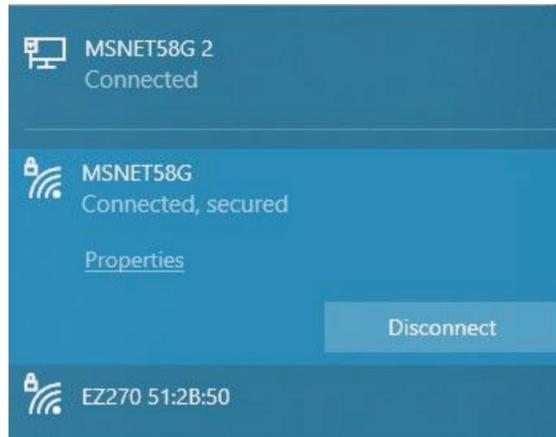
Model	Max Consumption
mPad+, rPad+, EZ230	1A (5 watts)
rPad+MX and EZ270	2A (10 watts)

Power Consumption table for Identix gateways

Access the embedded WiFi hotspot

When the gateway is powered up, a WiFi hotspot is created. The Wi-Fi network name (SSID) contains the gateway model followed by the last three octets of the gateway WLAN MAC address. In the example below the gateway name is “EZ270 51:2B:50”.

Use the following password to connect to the gateway hotspot: !ldntx1234



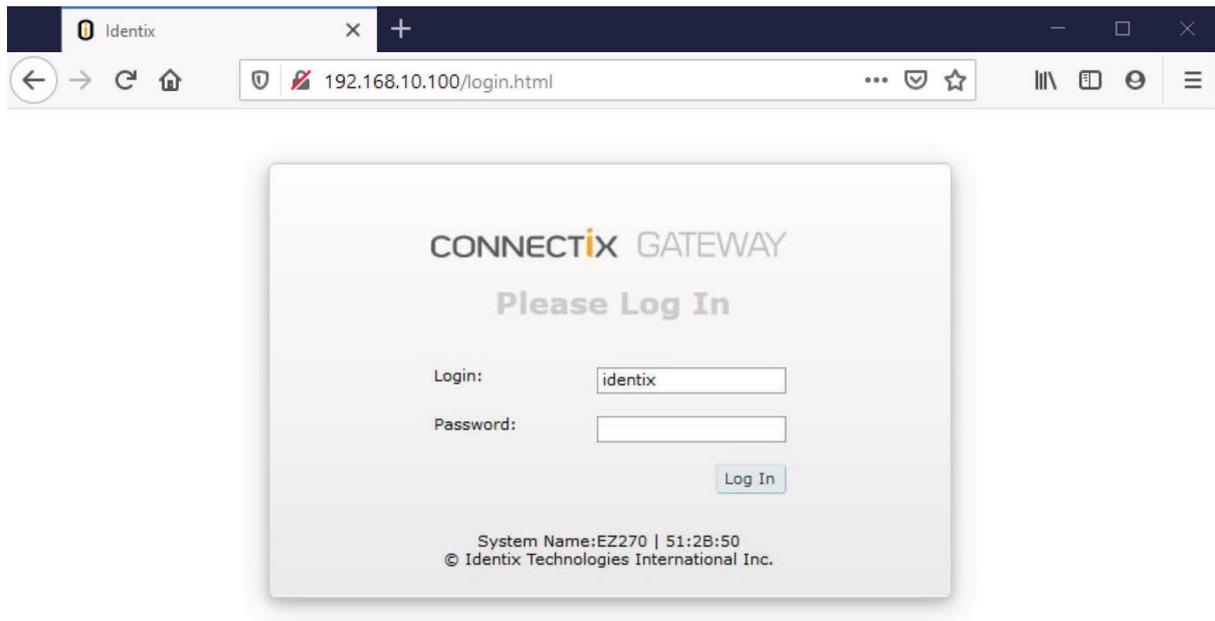
Log into the administration console

Once connected to the gateway Wi-Fi hotspot, open a browser on the default IP address (192.168.4.1) to access the administration interface

Using a browser, connect to <http://192.168.4.1> to access the administration console

After the login screen is shown, use the default username and password for accessing the administration console

*Default username: identix
Default password: identix*



After successfully logging into the system you will be able to check / modify the gateway configuration parameters through the administration console

Network Configuration

The gateways connect to a WiFi network as a WLAN station (client) and may send collected data to business applications and cloud services using different protocols such as MQTT, HTTP, sockets etc.

Optionally the RAIN RFID reader present in the gateway can communicate to a host computer via the USB port.

Use the next sections to configure the WLAN station parameters

- WLAN client connection – this is the WLAN network the gateway will connect to
- Roaming behavior - these parameters allow to configure WLAN roaming and its behavior
- IP address – allows to switch between dynamic (DHCP) and fixed IP address

Network WLAN – configuration

CONNECTiX GATEWAY E2270 | 51:2B:50 Help | Logout
identix

Dashboard **Network** BLE Beacons RAIN RFID Data Output USB Port System

General
> **WLAN**
IP

WLAN client configuration

SSID:

Authentication: Password: Show

Network connection and roaming

Minimum signal strength (RSSI) for connection to WLAN network (dB) **-76** | Signal strength threshold (RSSI) for disconnection (dB) **-80**

Signal strength threshold (RSSI) to initiate roaming (dB) **-70** | Signal strength threshold (RSSI) for roaming (dB) **6**

Roaming recurrence (seconds) **15** | Enable Roaming

Network IP - configuration

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Dashboard **Network** BLE Beacons RAIN RFID Data Output USB Port System

General
WLAN
> **IP**

IP address configuration

DHCP (automatic) Static (manual)

Ip address:

NetMask:

Default gateway:

Primary DNS:

Backup DNS:

Main Dashboard

The system dashboard shows a lot of useful information, including a summary of network connection, firmware versions, main components health and current system activity.

CONNECTIX GATEWAY EZ270 | 51:2B:50Help | Logout

DashboardNetworkBLE BeaconsRAIN RFIDData OutputUSB PortSystem

> General

Live RAIN Inventory

Live Beacons

System information

Gateway model	Serial number	Firmware version	RAIN RFID region
EZ270	17944848444240	4.0.10	USA - FCC Part 15.247 (902-928 Mhz)

Network status

WLAN	IP address	Netmask	Gateway
Connected to: MSNET CC:2D:E0:3F:21:5A	192.168.10.100	255.255.255.0	192.168.10.1

System status

System date and time	System UP time	RFID SIP temperature	USB Voltage
26/04/2021 20:20:43	33s	69 °C warning!	USB voltage = 4.9 V

RFID inventory	BLE scanning	Data output
stopped	stopped	Socket - not connected / Websocket - not connected

Live Information

Through these two panels it is possible to see the RAIN RFID inventory and BLE scanning in real time. These interfaces are implemented over web sockets and you must hit the “Connect” buttons to see the data in real time.

Live RAIN - RFID real time inventory

CONNECTIX GATEWAY EZ270 | 51:2B:50
Help | Logout
identix

Dashboard
Network
BLE Beacons
RAIN RFID
Data Output
USB Port
System

General

> **Live RAIN Inventory**

Live Beacons

RAIN tags inventory

Inventory is currently: **running**

Connect
Disconnect
Websocket Client is currently: **Connected**
Inventory
Start
Stop

Unique tags	Total reads	Elapsed time	Read rate (read/s)	Peak rate (read/s)
4	408	6s	72	72

EPC	Rd	RSSI	RSSI max	RSSI min	First Seen	Last Seen	Ant
3118E511C46699F763000000	101	-6440	-6390	-6570	17:19:19	17:19:25	1
2D0C74ACC3422DCFD4000000	104	-4900	-4900	-4990	17:19:19	17:19:25	1
3474257BF40000000000162E	102	-5680	-5680	-5680	17:19:19	17:19:25	1
2E187937058403BF51000000	101	-5080	-5080	-5180	17:19:19	17:19:25	1

Live Beacons – realtime BLE beacons scanning

CONNECTIX GATEWAY EZ270 | 51:2B:50
Help | Logout
identix

Dashboard
Network
BLE Beacons
RAIN RFID
Data Output
USB Port
System

General

Live RAIN Inventory

> **Live Beacons**

Live beacon scanning

Scanning is currently: **running**

Connect
Disconnect
Websocket Client is currently: **Connected**
Scanning
Start
Stop

Unique frames	Total reads	Elapsed time	Read rate (frames/s)	Peak rate (frames/s)
8	13	6s	3	3

MAC	Type	RSSI	RSSI Max	RSSI Min	Rd	Bat %	Bat mV	Temp °C	Hum %
AC:23:3F:25:2B:F4	MINEWINFO	-91	-83	-91	2	24	792	-	-
AC:23:3F:A2:15:0C	MINEWINFO	-67	-67	-68	3	100	3300	-	-
AC:23:3F:A2:15:07	MINEWINFO	-70	-70	-70	1	100	3300	-	-
AC:23:3F:A2:15:12	MINEWINFO	-76	-70	-76	2	100	3300	-	-
AC:23:3F:A2:15:12	EDDYSTONE-TLM	-84	-84	-86	2	96	3138	23	-
8E:CC:8C:08:19:EB	MINEWINFO	-79	-79	-79	1	100	3300	-	-

Network Status – network connection status

This section displays a summary about the gateway WLAN configuration and connection status

CONNECTiX GATEWAY E2270 | 51:2B:50 Help | Logout
identix

Dashboard **Network** BLE Beacons RAIN RFID Data Output USB Port System

> General
WLAN
IP

Network Status		
WLAN	IP address	Gateway
Connected to: MSNET CC:2D:E0:3F:21:5A	192.168.10.100	192.168.10.1
Primary DNS	Backup DNS	Netmask
200.204.0.10	200.204.0.138	255.255.255.0

BLE Beacons Gateway configuration

Though the following screens is possible to configure the BLE Beacons gateway functionality.

For optimal performance, if you do not plan to use the gateway for beacons scanning, we recommend leaving the option “Enable Bluetooth radio support” disabled.

BLE Beacons Scanning

CONNECTiX GATEWAY E2270 | 51:2B:50 Help | Logout
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Dashboard Network **BLE Beacons** RAIN RFID Data Output USB Port System

> Scanning
Filtering

BLE beacons scanning configuration Enable Bluetooth radio support

Scanning is currently: **running**

On system startup: Start beacons scanning Manual start

BLE Frame types & scanning speed

Scan speed:

<input type="checkbox"/> Generic BLE	<input checked="" type="checkbox"/> iBeacon	<input checked="" type="checkbox"/> AltBEacon
<input checked="" type="checkbox"/> Eddystone URL	<input checked="" type="checkbox"/> Eddystone TLM	<input checked="" type="checkbox"/> Eddystone UID
<input checked="" type="checkbox"/> Identix Beacon	<input checked="" type="checkbox"/> Identix Accelerometer	<input checked="" type="checkbox"/> Identix Temperature & Humidity Sensor

BLE Beacons Filtering

Through this section, two kind of filters can be enabled to reduce the volume of captured data.

- RSSI filter – use it to filter BLE beacons by signal intensity
- MAC Address filter – use it to filter BLE beacons by MAC address

CONNECTIX GATEWAY EZ270 | 51:2B:50 Help | Logout
identix

Dashboard | Network | **BLE Beacons** | RAIN RFID | Data Output | USB Port | System

Scanning
> **Filtering**

BLE beacons filtering configuration

Enable RSSI filter RSSI Filter -60

Enable MAC regex filter

supported operators	examples
^	start anchor
\$	end anchor
.	matches any character
[AB]	matches any character in list
	logical OR

RAIN RFID reader configuration

Use this section to configure the RAIN RFID reader operating parameters

RAIN RFID Inventory

Through the following screen, the following parameters may be configured

- How inventory will be executed after system startup
- Inventory Duty Cycle. Inventory can be configured to run continuously, or a cycled inventory may be defined
- Data Output – select which information will be captured during RFID inventory

The screenshot displays the 'RAIN RFID' configuration page in the IDENTIX GATEWAY. The page title is 'CONNECTIX GATEWAY E2270 | 51:2B:50'. The navigation menu includes Dashboard, Network, BLE Beacons, RAIN RFID (active), Data Output, USB Port, and System. The 'Inventory configuration' section shows 'Inventory is currently: stopped' with 'Start' and 'Stop' buttons. The 'On system startup' options are 'Automatic inventory start' (unselected) and 'Manual start' (selected). The 'Duty Cycle' section has 'Continuous' (selected) and 'Cycled' (unselected) options. The 'Inventory duration (ms)' is set to 200 and the 'Idle time (ms)' is set to 200. The 'Data output' section has checkboxes for 'FastId', 'RSSI', 'Phase', 'Channel', 'Antenna', 'Reader ID', and 'Timestamp', all of which are checked. An 'Apply' button is located at the bottom right of the configuration area.

RAIN RFID Antenna & Power

Use these settings to enable/disable antennas and configure transmit power on each antenna port.

CONNECTIX GATEWAY E2270 | 51:2B:50 Help | Logout
identix

Dashboard Network BLE Beacons **RAIN RFID** Data Output USB Port System

Inventory
Antenna & Power
Mode & Session
Filtering
Transform Data
Trigger
Write Tag

Antenna and power settings

Refresh

Port	Enable	Antenna TX Power cdBm	Status
1	<input checked="" type="checkbox"/>	2700	● Connected: Ok - Good matching (VSWR :1.54)
2	<input type="checkbox"/>	2700	● Disabled (VSWR :0.00)

Apply

RAIN RFID Reading Mode & Session

Use this section configure the RAIN RFID “search mode”, “session” and “RF profile”.

CONNECTIX GATEWAY E2270 | 51:2B:50 Help | Logout
identix

Dashboard Network BLE Beacons **RAIN RFID** Data Output USB Port System

Inventory
Antenna & Power
Mode & Session
Filtering
Transform Data
Trigger
Write Tag

RFID mode and sessions

Search Mode	Session	RF Profile	Population Estimate
Dual Target	0	Auto Dense Reader Mode	4

Apply

RAIN RFID Filtering

RAIN RFID tags can be filtered at the gateway using three different criteria

- RSSI filter – to filter tags by backscattered signal intensity
- EPC filter – you may use regular expressions that are applied for filtering EPC data
- GEN2 filter – this is a low-level filter that operates at the GEN2 protocol level

CONNECTIX GATEWAY E2270 | 51:2B:50 Help | Logout
identix

Dashboard Network BLE Beacons **RAIN RFID** Data Output USB Port System

Inventory

Antenna & Power

Mode & Session

> **Filtering**

Transform Data

Trigger

Write Tag

RFID tags filtering

Enable RSSI filter

RSSI filter threshold: -5000

Enable GEN2 filter

Memory Bank: MEM_BANK_EPC

Target: TARGET_SL_FLAG

Action: ACTION_NSLINVS_NOTHING

HEX mask:

Enable EPC filter (REGEX syntax)

supported operators	examples
^	start anchor 3035 contains 3035
\$	end anchor ^ABCD\$ exactly ABCD
.	matches any character ^3035 start with 3035
[AB]	matches any character in list CDEF\$ ends with CDEF
	logical OR ^.035 begins with *035
	^3 ^E begins with 3 OR E

RAIN RFID Data Transformation

This section allows the following operations to be executed after the RAIN RFID EPC data is captured

- Decode GS1 tag EPC memory data – this option enables the automatic decoding of Tag EPC binary data into standard human readable barcode formatting as defined by the GS1 EPC Tag Data Standard. The following formats are automatically decoded when this setting is enabled:
 - Serialized Global Trade Item Number (SGTIN-96, SGTIN-198)
 - Serial Shipping Container Code (SSCC-96)
 - Global Location Number (GLN-96, GLN-195)
 - Global Returnable Asset Identifier (GRAI-96, GRAI-170)
 - Global Individual Asset Identifier (GIAI-96, GIAI-202)
 - Global Service Relation Number (GSRN96, GSRNP-96)
 - Global Document Type Identifier (GDTI-96, GDTI-113, GDTI-174)
 - Component / Part Identifier (CPI-96, CPI-VAR)
 - Serialized Global Coupon Number (SGCN-96)
 - General Identifier (GID-96)
 - US Department of Defense Identifier (US-DOD-96)
- EPC Truncate – allows ECP data to be truncated from a given position
- EPC Additional Info – allows EPC data to be appended / prepended by given strings

Dashboard Network BLE Beacons **RAIN RFID** Data Output USB Port System

Inventory
Antenna & Power
Mode & Session
Filtering
> **Transform Data**
Trigger
Write Tag

Data transformation

Decode GS1 tag EPC memory data

This option enables the automatic decoding of Tag EPC binary data into standard human readable barcode formatting as defined by the GS1 EPC Tag Data Standard. The following formats will be decoded:

Enable

- Serialized Global Trade Item Number (SGTIN-96, SGTIN-198)
- Serial Shipping Container Code (SSCC-96)
- Global Location Number (GLN-96, GLN-195)
- Global Returnable Asset Identifier (GRAI-96, GRAI-170)
- Global Individual Asset Identifier (GIAI-96, GIAI-202)
- Global Service Relation Number (GSRN96, GSRNP-96)
- Global Document Type Identifier (GDTI-96, GDTI-113, GDTI-174)
- Component / Part Identifier (CPI-96, CPI-VAR)
- Serialized Global Coupon Number (SGCN-96)
- General Identifier (GID-96)
- US Department of Defense Identifier (US-DOD-96)

EPC Truncate

Enable

Start:

Length:

EPC Additional Info

Data Prefix:

Data Suffix:

Apply

RAIN RFID Trigger

Use this option to configure the optical sensor to be used as trigger for initiating RFID inventory

Dashboard Network BLE Beacons **RAIN RFID** Data Output USB Port System

Inventory
Antenna & Power
Mode & Session
Filtering
Transform Data
> **Trigger**
Write Tag

Inventory triggers

Enable optical sensor trigger for reading tags

Threshold: 85

Apply

RAIN RFID Write Tag

Allows writing of RFID tag EPC data

CONNECTIX GATEWAY EZ270 | 51:2B:50 Help | Logout
identix

Dashboard | Network | BLE Beacons | **RAIN RFID** | Data Output | USB Port | System

Inventory
Antenna & Power
Mode & Session
Filtering
Transform Data
Trigger
[> Write Tag](#)

Write TAG

Writing tag will stop inventory if it was running, make sure to restart inventory after writing tags if it is necessary.

Current EPC: 0 bits

New EPC: 0 bits

Tag(s) and Increment new EPC for each: 1

Data Output configuration

This section allows you to define how the collected data is made available for applications and services. JSON-formatted data is sent to different channels, including MQTT brokers, HTTP servers and cloud services.

Data Output General

CONNECTIX GATEWAY EZZ70 | 51:2B:50 Help | Logout
identix

Dashboard Network BLE Beacons RAIN RFID **Data Output** USB Port System

> General

MQTT
Socket
Web Post

Configured data outputs

Service	Port URL	Enabled	Connected
Internal socket server	14150	yes	●
MQTT broker	1883 ittsh.synergy.com.br	no	●
Internal websocket server	8080	yes	●
HTTP(s) post	https://ittsh.synergy.com.br/api/inventories	no	●

Heartbeat

Period (s) 5

Enable on MQTT Enable on socket Enable on HTTP post

Apply

Data Output MQTT

Use this section to configure output via MQTT(s)

CONNECTIX GATEWAY EZZ70 | 51:2B:50 Help | Logout
identix

Dashboard Network BLE Beacons RAIN RFID **Data Output** USB Port System

General

> MQTT

Socket
Web Post

MQTT broker settings Enable

Enable SSL/TLS Generic

MQTT broker server: ittsh.synergy.com.br

Service port: 1883

Client ID: SMCR:Minipad4

Username: SMCR:Minipad4

Password: ●●●●●●

RAIN RFID inventory: SMCR/Minipad4/inventory

BLE Beacons topic: SMCR/Minipad4/ble

Heartbeat's topic: SMCR/Minipad4/heartbeat

Info's topic: SMCR/Minipad4/info

Command's topic: SMCR/Minipad4/command

Apply

Data Output Sockets

Use this section to enable a local socket server

CONNECTIX GATEWAY E2270 | 51:2B:50 Help | Logout
identix

Dashboard Network BLE Beacons RAIN RFID **Data Output** USB Port System

General
MQTT
> **Socket**
Web Post

Socket server settings Enable

Socket server port:

Apply

Data Output HTTP POST

Use this section to configure output via HTTP(s)

CONNECTIX GATEWAY E2270 | 51:2B:50 Help | Logout
identix

Dashboard Network BLE Beacons RAIN RFID **Data Output** USB Port System

General
MQTT
Socket
> **Web Post**

Web post settings Enable

Server Address:

Username:

Password:

Enable AIMP

API License:

Reader Key:

Apply

USB Port Configuration

USB Port General

CONNECTIX GATEWAY EZ270 | 51:2B:50 Help | Logout
identix

Dashboard Network BLE Beacons RAIN RFID Data Output **USB Port** System

> General
Data Formatting

USB port

Mirror (default mode) mode - an USB virtual COM port is created. Configurations and commands are done via Web interface. Output data (JSON) can be simultaneously sent to network destinations and the virtual COM port

HID (keyboard wedge) mode - an USB virtual keyboard is created. Configurations and commands are done via Web interface. Output data can be simultaneously sent to network destinations and the USB keyboard

RAW mode - an USB virtual COM port is created. Configurations and commands are done via a simple ASCII command protocol. Output data is sent exclusively to the virtual COM port

Transparent mode - an USB virtual COM port is created. Configurations and commands are done via IRI protocol. Output data is sent exclusively to the virtual COM port

System Information and Management

System Info

This section provides useful system information including the Firmware Version installed on the gateway.

CONNECTIX GATEWAY EZ270 | 51:2B:50 Help | Logout
identix

Dashboard Network BLE Beacons RAIN RFID Data Output USB Port **System**

> Info
Admin
Operating Region
Date and Time
Ping

System information

Gateway model	Hardware version	Serial number
EZ270	4.1	17944848444240
WLAN MAC address	System firmware version	RFID SIP serial number
10:52:1C:51:2B:50	4.0.10	120
RFID SIP firmware version	RFID SIP model	RAIN RFID operating region
1.08.00.240	RS1000	USA - FCC Part 15.247 (902-928 Mhz)

System Admin

The following operations can be performed through this section:

- Device firmware updated
- Modify administration password
- Disable the device configuration Access Point. When this option is checked, the internal management hotspot automatically shuts down after the device is powered up

The screenshot shows the 'System administration' page of the CONNECTIX GATEWAY EZ270 | 51:2B:50. The page has a navigation bar with tabs for Dashboard, Network, BLE Beacons, RAIN RFID, Data Output, USB Port, and System (selected). On the left, there is a sidebar with 'Info' and 'Admin' (selected) sections. The main content area contains the following fields and buttons:

- URL for firmware updates:
- Device Alias: Administrator password: Show
- Disable management AP after seconds
- Buttons:

System – RAIN RFID Operating Region

Configure here the region where the gateway is installed.

The screenshot shows the 'RAIN RFID operating region configuration' page of the CONNECTIX GATEWAY EZ270 | 51:2B:50. The page has a navigation bar with tabs for Dashboard, Network, BLE Beacons, RAIN RFID (selected), Data Output, USB Port, and System. On the left, there is a sidebar with 'Info', 'Admin', and 'Operating Region' (selected) sections. The main content area contains the following field and button:

- RFID region selection:

System Date Time

Configure here the date and time information

CONNECTIX GATEWAY E2270 | 51:2B:50 Help | Logout
identix

Dashboard Network BLE Beacons RAIN RFID Data Output USB Port **System**

Info
Admin
Operating Region
> Date and Time
Ping

System Date and Time

Enable NTP servers
NTP servers:

Auto adjust internal clock during daylight saving time
Timezone:

Date: Time:

System Ping

Through this screen it is possible to ping a given host directly from the gateway

CONNECTIX GATEWAY E2270 | 51:2B:50 Help | Logout
identix

Dashboard Network BLE Beacons RAIN RFID Data Output USB Port **System**

Info
Admin
Operating Region
Date and Time
> Ping

Network troubleshooting

IP to ping:

Help

This screen provide access to support resources and the REST API programming interface

Resource Group

mPAD, EZ230, EZ270

This is the documentation of the API, about how to interact with the Identix mPad's EZ230, EZ270

Resource Group

ACTIONS

POST /factoryReset **Reset to factory the device**

Example URI

POST /factoryReset

Response 200 [Show](#)

POST /restart **Restart the device**

Example URI

POST /restart

Response 200 [Show](#)

CONFIGURATION [Back to top](#)