

Remote management of IQRF gateways

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Company overview







- **Czech**, privately held **company** located in Brno
- Founded in 2013 by **8 researchers** from Brno University of Technology (we are official **spin-off** company)
- Won price „**Best cooperation of the year**“ from the Czech technology agency (TACR)
- Offices in **Research Centre of Excellence** at Faculty of Information Technology (of the same university)
- Our products are based on **embedded systems** and **cloud services**
- We also offer **custom development** and **maintenance** of systems

Management system

- **Remote management** comes to scene **within maintenance**, for example:
 - How do you monitor and get to know about your device issues?
 - How do you repair and update your device in the field?
 - And how do you work with tens of even hundreds of such devices?



- Based on this issues, with our know-how and customers feedback we have developed *management system usable also for **IQRF gateways***

-  [About](#)
-  [Login](#)
-  [Registration](#)
-  [Account activation](#)

Management system for all linux-based devices



Remote control

Control, maintenance and management all of your devices in different localities from one place.



Alerting

Setup watching of any property and receive e-mail or SMS notification when threshold is reached.

Observe status of your devices one by one or whole group. Large set of properties is supported.





Monitoring







IQRF

Support for IQRF network and another custom modules upon your requirements.



-  [Help](#)
-  [Language](#)

-  About
-  Login
-  **Registration**
-  Account activation

E-mail

Password

First name

Surname

SIGN UP

 Help

 Language 



Pepa Hajek



Dashboard



Monitoring



Management



Events



Triggers



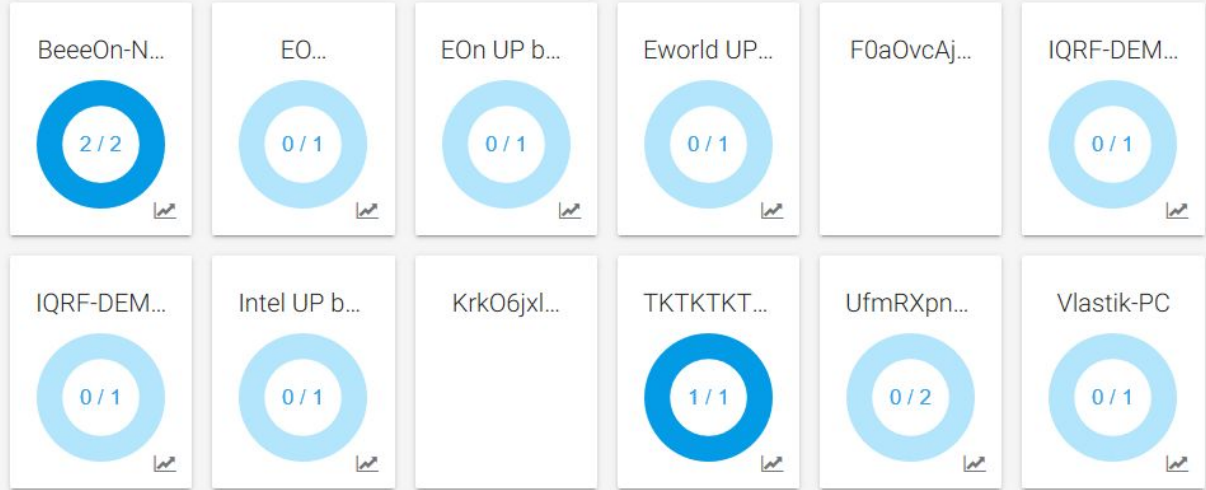
Files



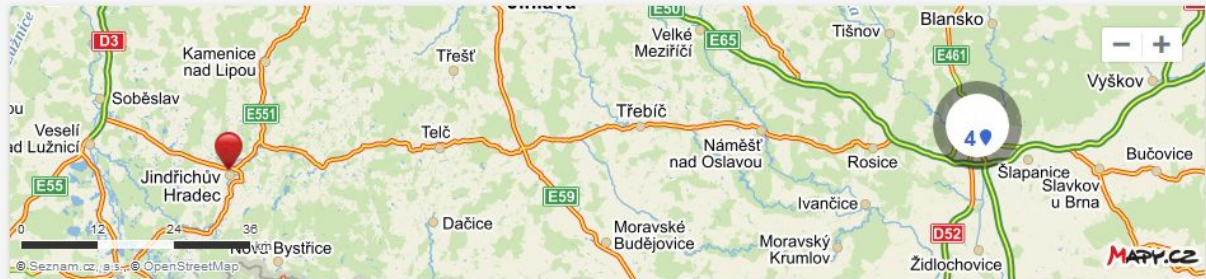
Help



Language



tqI9oeuj...





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Language

BeeOn-N***** 2 devices	
EO***** 1 device	
F0aOvcAj***** 0 devices	
IQRF-DEM***** 1 device	
IQRF-DEM***** 1 device	
KrkO6jx1***** 0 devices	
TKTKTK***** 1 device	
tq19oeuj***** 0 devices	
UfmRXpnc***** 2 devices	
New token	<input type="text"/> <input type="button" value="ADD"/>



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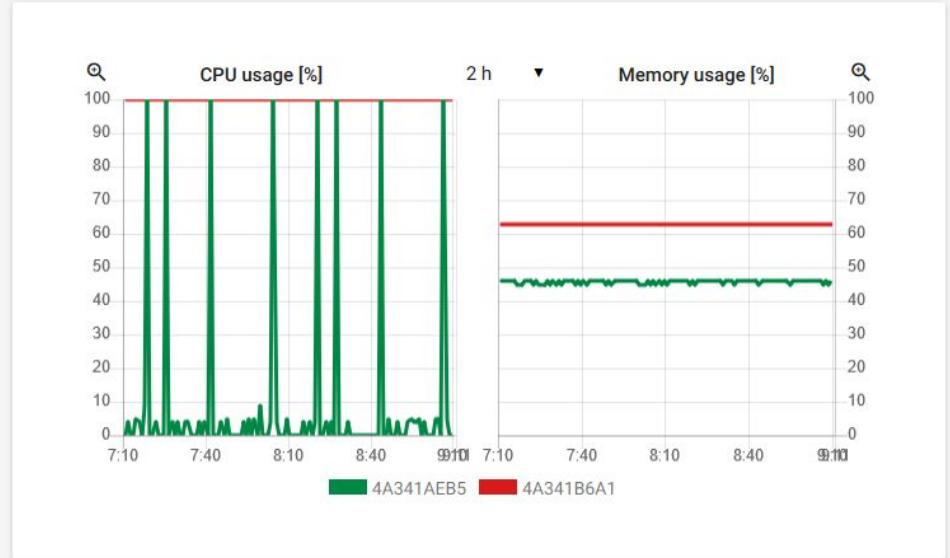


Language

Search
Enter token or tag...

- 04:A3:41:AE:B5 05/29/2017 9:09:49 am
- 04:A3:41:B6:A1 05/29/2017 9:10:04 am
- 07:32:3D:2E:13 05/29/2017 9:10:22 am
- 07:32:3D:63:88 05/17/2017 1:42:43 am
- 07:32:3E:4E:2E 04/18/2017 3:24:48 pm
- 07:32:3F:DB:9A 04/24/2017 5:56:39 pm
- 3C:33:00:5E:AF:81 05/22/2017 2:29:27 pm
- 74:F0:6D:73:2D:B6 05/26/2017 8:42:18 pm

Selected devices: 2





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✓	04:A3:41:AE:B5 05/29/2017 9:17:49 am	⋮
✓	04:A3:41:B6:A1 05/29/2017 9:18:04 am	⋮
✓	07:32:3D:2E:13 05/29/2017 9:17:22 am	⋮
✗	07:32:3D:63:88 05/17/2017 1:42:43 am	⋮
✗	07:32:3E:4E:2E 04/18/2017 3:24:48 pm	⋮
✗	07:32:3F:DB:9A 04/24/2017 5:56:39 pm	⋮
✗	3C:33:00:5E:AF:81 05/22/2017 2:29:27 pm	⋮
✗	74:F0:6D:73:2D:B6 05/26/2017 8:42:18 pm	⋮





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07:32:3D:2E:13

Search
Enter token or tag...

- ✓ 04:A3:41:AE:B5
05/29/2017 9:17:49 am
- ✓ 04:A3:41:B6:A1
05/29/2017 9:18:04 am
- ✓ 07:32:3D:2E:13
05/29/2017 9:18:22 am
- ✗ 07:32:3D:63:88
05/17/2017 1:42:43 am
- ✗ 07:32:3E:4E:2E
04/18/2017 3:24:48 pm
- ✗ 07:32:3F:DB:9A
04/24/2017 5:56:39 pm
- ✗ 3C:33:00:5E:AF:81
05/22/2017 2:29:27 pm
- ✗ 74:F0:6D:73:2D:B6
05/26/2017 8:42:18 pm

TKTKTKTK...

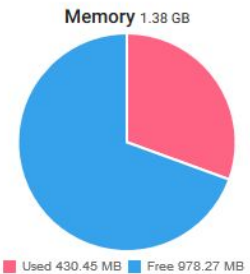
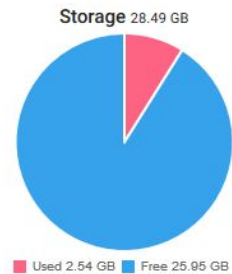
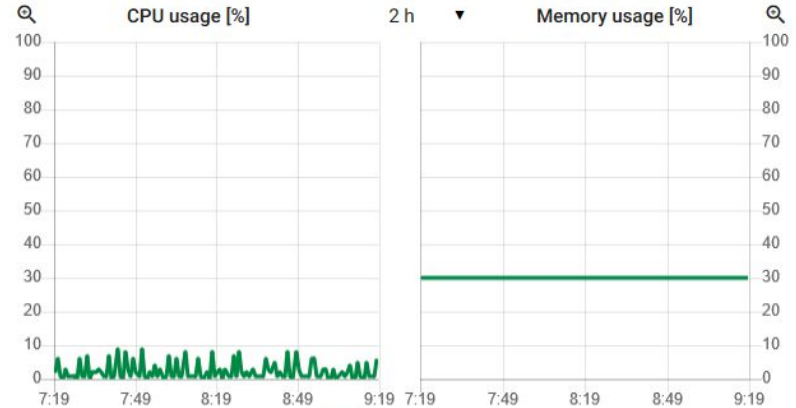
RehiveTech UP Board

+Tag

- IQRF network
- Configuration
- Remove

Load avg. 0.08 0.04 0.01

Uptime 2 days 18:



IQRF network overview

Online nodes 1 / 3
 Coordinator TR module DCTR-72D, FCC not certified, PIC16F1938
 Coordinator OS version 3.08D
 Coordinator OS build 2169





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07:32:3D-2E:13

Search

Enter token or tag...

✓	04:A3:41:AE:B5 05/29/2017 9:17:49 am	<input type="checkbox"/>
✓	04:A3:41:B6:A1 05/29/2017 9:18:04 am	<input type="checkbox"/>
✓	07:32:3D:2E:13 05/29/2017 9:18:22 am	<input checked="" type="checkbox"/>
✗	07:32:3D:63:88 05/17/2017 1:42:43 am	<input type="checkbox"/>
✗	07:32:3E:4E:2E 04/18/2017 3:24:48 pm	<input type="checkbox"/>
✗	07:32:3F:DB:9A 04/24/2017 5:56:39 pm	<input type="checkbox"/>
✗	3C:33:00:5E:AF:81 05/22/2017 2:29:27 pm	<input type="checkbox"/>
✗	74:F0:6D:73:2D:B6 05/26/2017 8:42:18 pm	<input type="checkbox"/>

Used 2.54 GB Free 25.95 GB

Used 430.45 MB Free 978.27 MB

IQRF network overview

Online nodes	1 / 3
Coordinator TR module	DCTR-72D, FCC not certified, PIC16F1938
Coordinator OS version	3.08D
Coordinator OS build	2169

DETAILS

Action history

Expand all

✓	IQRF: Firmware update Pepa Hajek 05/26/2017 2:53:22 pm	▼
✓	IQRF: Identifying Pepa Hajek 05/26/2017 2:53:13 pm	▼
✓	IQRF: Identifying Pepa Hajek 05/26/2017 2:53:11 pm	▼
✓	IQRF: Identifying Pepa Hajek 05/26/2017 2:53:07 pm	▼
✓	IQRF: Firmware update Pepa Hajek 05/26/2017 2:52:44 pm	▼
✓	IQRF: Firmware update Pepa Hajek 05/26/2017 2:52:17 pm	▼
✓	IQRF: Firmware update Pepa Hajek 05/26/2017 2:51:50 pm	▼
✓	IQRF: Firmware update Pepa Hajek 05/26/2017 2:50:22 pm	▼





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07:32:3D:2E:13

Search
Enter token or tag...

✓ 04:A3:41:AE:B5
05/29/2017 9:17:49 am

✓ 04:A3:41:B6:A1
05/29/2017 9:18:04 am

✓ 07:32:3D:2E:13
05/29/2017 9:18:22 am

✗ 07:32:3D:63:88
05/17/2017 1:42:43 am

✗ 07:32:3E:4E:2E
04/18/2017 3:24:48 pm

✗ 07:32:3F:DB:9A
04/24/2017 5:56:39 pm

✗ 3C:33:00:5E:AF:81
05/22/2017 2:29:27 pm

✗ 74:F0:6D:73:2D:B6
05/26/2017 8:42:18 pm

✓ IQRF: Identifying Pepa Hajek
05/26/2017 2:53:11 pm

✓ IQRF: Identifying Pepa Hajek
05/26/2017 2:53:07 pm

✓ IQRF: Firmware update Pepa Hajek
05/26/2017 2:52:44 pm

✓ IQRF: Firmware update Pepa Hajek
05/26/2017 2:52:17 pm

✓ ✗ IQRF: Firmware update Pepa Hajek
05/26/2017 2:51:50 pm

✓ IQRF: Firmware update Pepa Hajek
05/26/2017 2:50:22 pm

✓ IQRF: Identifying Pepa Hajek
05/26/2017 2:49:18 pm

✓ Update of configuration Pepa Hajek
05/26/2017 2:48:50 pm



This device has no description yet.



Device location: 49°13'34.155"N 16°35'42.998"E

MAPPY.CZ





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Configuration

System statistics Refresh time: 60 s

Gatherable values

<input checked="" type="checkbox"/> Uptime	<input checked="" type="checkbox"/> Storage	<input checked="" type="checkbox"/> CPU average load
<input checked="" type="checkbox"/> CPU statistics (interrupts)	<input checked="" type="checkbox"/> Swap	<input checked="" type="checkbox"/> Memory

Triggers

No triggers here yet.

Check interval: 60 s +

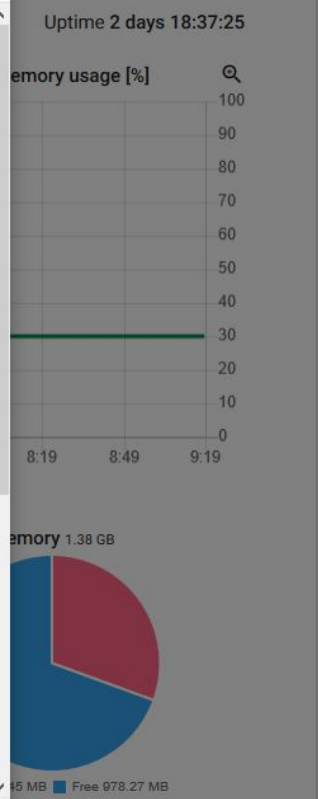
IQRf daemon Refresh time: 10 s

Gatherable values

<input checked="" type="checkbox"/> Node ID	<input checked="" type="checkbox"/> Parent ID	<input checked="" type="checkbox"/> Zone
<input checked="" type="checkbox"/> Discovered	<input checked="" type="checkbox"/> Online	<input checked="" type="checkbox"/> RSSI
<input checked="" type="checkbox"/> Voltage	<input checked="" type="checkbox"/> OS Version	<input checked="" type="checkbox"/> OS Build
<input checked="" type="checkbox"/> Coordinator TR module		

Min: ### kbps
Max: ### kbps

CANCEL SAVE



IQRf network overview

Online nodes	1 / 3
Coordinator TR module	DCTR-72D, FCC not certified, PIC16F1938
Coordinator OS version	3.08D
Coordinator OS build	2169

+



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IQRF daemon

Refresh time



10 s

Gatherable values

- Node ID
- Discovered
- Voltage
- Coordinator TR module

- Parent ID
- Online
- OS Version

- Zone
- RSSI
- OS Build

IQRF interface

/dev/ttyACM0

MQTT Broker address

tcp://127.0.0.1:1883

MQTT Topic request

Iqrf/DpaRequest

MQTT Topic response

Iqrf/DpaResponse

Triggers

No triggers here yet.

Check interval



60 s



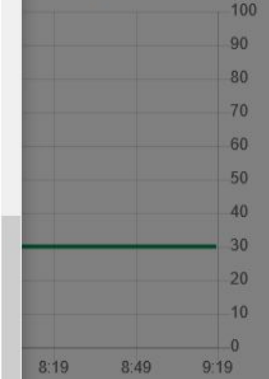
Min: ### kbps
Max: ### kbps

CANCEL

SAVE

Uptime 2 days 18:37:25

Memory usage [%]



Memory 1.38 GB



Free 978.27 MB

IQRF network overview

Online nodes	1 / 3
Coordinator TR module	DCTR-72D, FCC not certified, PIC16F1938
Coordinator OS version	3.08D
Coordinator OS build	2169





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List of actions

✓	IQRF: Firmware update Pepa Hajek 05/26/2017 2:53:20 pm	⋮
✓	IQRF: Identifying Pepa Hajek 05/26/2017 2:53:12 pm	⋮
✓	IQRF: Identifying Pepa Hajek 05/26/2017 2:53:11 pm	⋮
✓	IQRF: Identifying Pepa Hajek 05/26/2017 2:53:06 pm	⋮
✓	IQRF: Firmware update Pepa Hajek 05/26/2017 2:52:43 pm	⋮
✓	IQRF: Firmware update Pepa Hajek 05/26/2017 2:52:15 pm	⋮
✓ ✗	IQRF: Firmware update Pepa Hajek 05/26/2017 2:51:48 pm	⋮
✓	IQRF: Firmware update Pepa Hajek 05/26/2017 2:50:20 pm	⋮
✓	IQRF: Identifying Pepa Hajek 05/26/2017 2:49:17 pm	⋮
✓	Update of configuration Pepa Hajek 05/26/2017 2:48:49 pm	⋮

1 2 3 4 5 6 >



 Pepa Hajek

 Dashboard

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 Language

Name

Force reboot

Note

Force reboot of unreliable devices

Type

Command

Command parameters

reboot -f

Start date

2017-05-29

Start time

09:49

After success

Do nothing

After failure

Send e-mail notification


Recipient when failure

▼ hajek@rehivetech.com



Devices


Select all

 04:A3:41:AE:B5 
BeeeOn-N...

 04:A3:41:B6:A1
BeeeOn-N...

 07:32:3D:2E:13 
TKTKTKTK... RehiveTech UP board

 07:32:3D:63:88 
IQRF-DEM... EOn UP board

 07:32:3E:4E:2E



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Force reboot



Force reboot
05/29/2017 9:56:31 ...

✓ IQR: Firmware ...
05/26/2017 2:53:20 ...

✓ IQR: Identifying
05/26/2017 2:53:12 ...

✓ IQR: Identifying
05/26/2017 2:53:11 ...

✓ IQR: Identifying
05/26/2017 2:53:06 ...

✓ IQR: Firmware ...
05/26/2017 2:52:43 ...

✓ IQR: Firmware ...
05/26/2017 2:52:15 ...

✓✗ IQR: Firmware ...
05/26/2017 2:51:48 ...

✓ IQR: Firmware ...
05/26/2017 2:50:20 ...

✓ IQR: Identifying
05/26/2017 2:49:17 ...

✓ Update of config...
05/26/2017 2:48:49 ...

? IQR: Identifying
05/26/2017 2:43:03 ...

? Update of config...
05/26/2017 2:42:20 ...

SSH tunnel



Command

reboot



Force reboot of unreliable devices



05/29/2017 9:56:31 am



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hajek@rehivetech.com



After failure send e-mail notification

hajek@rehivetech.com

Devices

Expand all



07:32:3D:2E:13
05/29/2017 9:56:31 am





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Force reboot

- ✓ Force reboot 05/29/2017 9:56:31 ...
- ✓ IQRf: Firmware ... 05/26/2017 2:53:20 ...
- ✓ IQRf: Identifying 05/26/2017 2:53:12 ...
- ✓ IQRf: Identifying 05/26/2017 2:53:11 ...
- ✓ IQRf: Identifying 05/26/2017 2:53:06 ...
- ✓ IQRf: Firmware ... 05/26/2017 2:52:43 ...
- ✓ IQRf: Firmware ... 05/26/2017 2:52:15 ...
- ✓✗ IQRf: Firmware ... 05/26/2017 2:51:48 ...
- ✓ IQRf: Firmware ... 05/26/2017 2:50:20 ...
- ✓ IQRf: Identifying 05/26/2017 2:49:17 ...
- ✓ Update of config... 05/26/2017 2:48:49 ...
- ? IQRf: Identifying 05/26/2017 2:43:03 ...
- ? Update of config... 05/26/2017 2:42:20 ...
- SSH tunnel



Command

reboot



Force reboot of unreliable devices



05/29/2017 9:56:31 am



Pepa Hajek

hajek@rehivetech.com

Devices

Expand all



07:32:3D:2E:13

05/29/2017 9:56:33 am

Return code: 0

Standard output (stdout):

Reboot initialized.

Standard error output (stderr):



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Configuration



System statistics



Refresh time

60 s

Gatherable values



Uptime



Storage



CPU average load



CPU statistics (interrupts)



Swap



Memory

Triggers

Event

Operator

Value

IF CPU utilization



>



50 %

+ AND

+ OR

Action

Recipient

THEN Send e-mail notification

hajek@rehivetech.com



Check interval

5 s



IQR daemon



Refresh time

10 s

Gatherable values



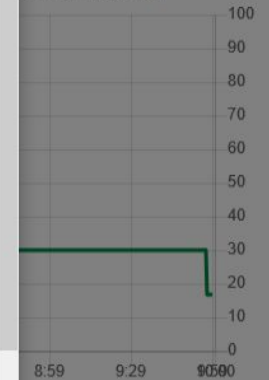
Min: ### kbps
Max: ### kbps

CANCEL

SAVE

Uptime 00:02:10

Memory usage [%]



Memory 1.38 GB



IQRF network overview

Online nodes

1 / 3

Coordinator TR module

DCTR-72D, FCC not certified, PIC16F1938

Coordinator OS version

3.08D

Coordinator OS build

2169





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Help

07:32:3D:2E:13

CPU utilization > 50 %

▲ 05/29/2017 10:06:39 am



07:32:3D:2E:13

CPU utilization > 50 %

▲ 05/29/2017 10:06:08 am ▼ 05/29/2017 10:06:23 am





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Conditions	Action
	07:32:3D:2E:13
CPU utilization > 50 %	email (hajek@rehivetech.com)



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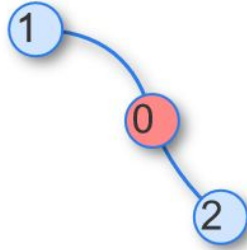


Triggers



Files

Topology



Nodes 2 / 3 online

- ✗ 8578 / 1
05/29/2017 10:11:04 am 📄 🔇 ℹ️
- ✓ 8581 / 0 coordinator
05/29/2017 10:11:04 am 📄 🔇 ℹ️
- ✓ 8584 / 2
05/29/2017 10:11:04 am 📄 🔇 ℹ️

Zone		Parent node	N/A
OS version	3.08D	OS build	2169

IQRF daemon ↻

IQRF interface /dev/ttyACM0
 MQTT Broker address tcp://127.0.0.1:1883
 MQTT Topic request Iqrf/DpaRequest
 MQTT Topic response Iqrf/DpaResponse



Help



Language



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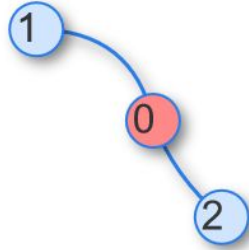


Help



Language

Topology



Nodes 2 / 3 online

- ✗ 8578 / 1
 05/29/2017 10:11:04 am
- ✓ 8581 / 0 coordinator
 05/29/2017 10:11:04 am
- ✓ 8584 / 2
 05/29/2017 10:11:04 am

Zone	Parent node	Unbond all Start bonding Start discovery Device configuration
OS version	3.08D OS build	

IQRF daemon

IQRF interface	/dev/ttyACM0
MQTT Broker address	tcp://127.0.0.1:1883
MQTT Topic request	lqrf/DpaRequest
MQTT Topic response	lqrf/DpaResponse



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Firmware update

Select the firmware you want to upload to node 8584 / 2.










Firmware

CustomDpaHandler-ledg-blink.hex

CANCEL

UPDATE

Nodes 2 / 3 online

- ✗ 8578 / 1
05/29/2017 10:11:04 am   
- ✓ 8581 / 0 coordinator
05/29/2017 10:11:04 am   
- ✓ 8584 / 2
05/29/2017 10:11:04 am   

MQTT Topic request
MQTT Topic response


/dev/ttyACM0
tcp://127.0.0.1:1883
lqrf/DpaRequest
lqrf/DpaResponse



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IQRF daemon

Refresh time

10 s

Gatherable values

- Node ID
- Discovered
- Voltage
- Coordinator TR module
- Parent ID
- Online
- OS Version
- Zone
- RSSI
- OS Build

IQRF interface

/dev/ttyACM0

MQTT Broker address

tcp://127.0.0.1:1883

MQTT Topic request

Iqrf/DpaRequest

MQTT Topic response

Iqrf/DpaResponse

Triggers

No triggers here yet.

Check interval

60 s



Min: ### kbps
Max: ### kbps

CANCEL





SAVE

node N/A
ld 2169

/dev/ttyACM0
tcp://127.0.0.1:1883
Iqrf/DpaRequest
Iqrf/DpaResponse

Help

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Management system for all linux-based devices



Remote control

Control, maintenance and management all of your devices in different localities from one place.



Alerting

Setup watching of any property and receive e-mail or SMS notification when threshold is reached.

Observe status of your devices one by one or whole group. Large set of properties is supported.





Monitoring



IQRF



-  [Help](#)
-  [Language](#)

- **Our management system allows you to:**
 - Monitor your devices/gateways and gets their status remotely
 - Set actions (e.g. notifications) when something goes wrong
 - Simple remote update of device (one-by-one or in a group)
 - Manage all nodes, coordinator and other stuff from IQRF network

**Thank you for your
attention!**