



# IQRF Tech News

Hynek Syrovátka, CTO

Prague 2016

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My name is, I will ...

I was told not to fill the presentation by too much text – I took it literally :-)) - next slide

Do not even expect table of contents :-))

Let's concentrate to the spoken detail and the discussion at the end

The presentation with brief :-)) speaker notes is available on request



# **IQRF OS + DPA + SDK + IDE**

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IQRF is not IQRF OS only anymore

Truly the full ecosystem OS-DPA-SDK

IDE is not actually only IDE – for development only; it is also a full IQRF maintenance app



**Time span = 1 year**

Although there was IQRFA conference last autumn – we have IQRF distributors here – they met a year ago last time



# TR-7x Support

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“Simply” HW support

Easy = transparent migration from TR-5x to TR-7x

Certain features available at TR-7x only (OTA)

Extended external EEPROM – 64 kB of space

Faster SPI communication support

More space for custom DPA handler compared to TR-5x

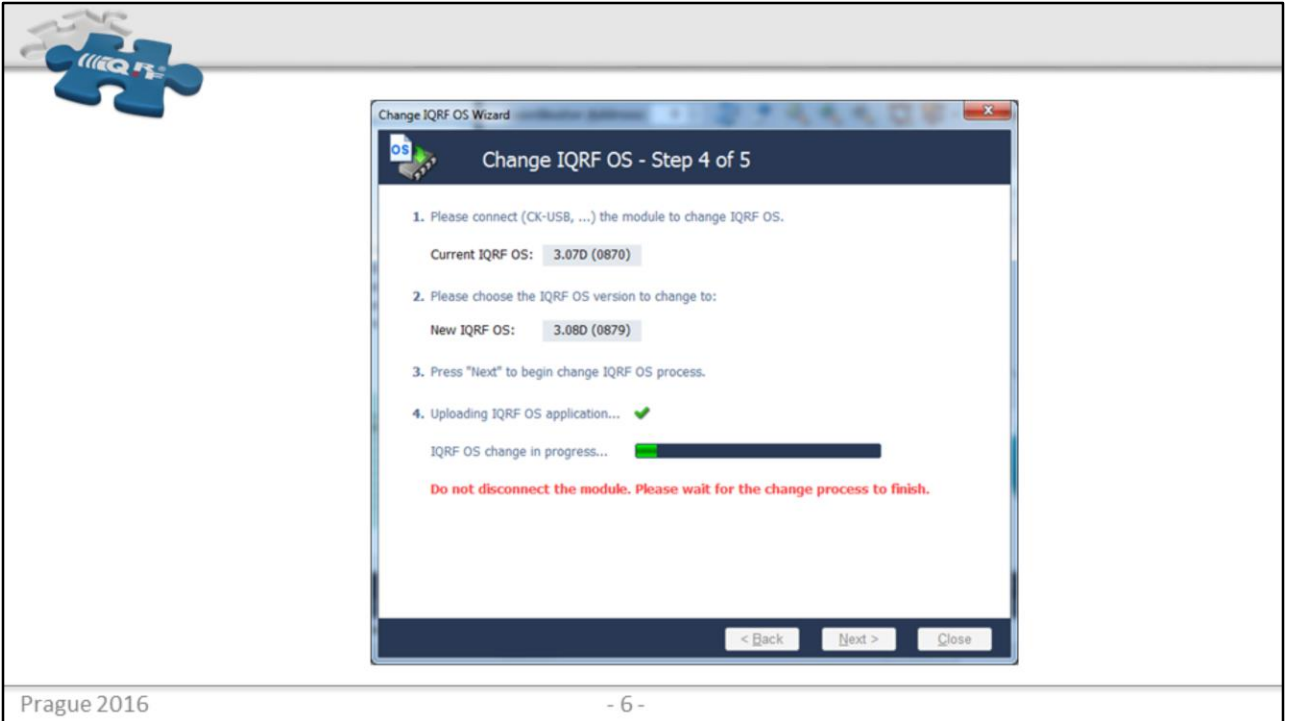


# IQRF OS Update

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No need to send TRs to MICRORISC for IQRF OS update  
We call it actually IQRF OS Change as the IQRF OS can be also downgraded  
So starting from IQRF OS 3.06 you can bidirectionally move among IQRF OS versions  
Can be full done manually by user, from IQRF IDE, from DPA, ...



Describe the picture...



# Upgraded FRC

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- 2B FRC
- Selective FRC

The screenshot displays the IQMESH Network Manager interface. At the top left, there is a logo consisting of blue puzzle pieces with the letters 'IQMESH' on them. The main window is divided into several sections:

- Packet Inspector (Left):** Shows details for the last record, including Date (23.05.2016), Time (15:13:30.096), Length (40), and Version (2.xx). It displays Protocol: DPA (Response) with fields: NADR: 0x0000 00000 (Coordinator), PRLM: 0x00 000 (COORDINATOR), PCMD: 0x82 130 (Get bonded nodes), HWPID: 0x000F 00015 (Unknown), Errtc: 0x00 000 (Error no), DPA value: 0x00 000, and PDATA[32]. Below this is a Bitmap section for Bonded Nodes [5] <1,5>, showing a grid of nodes 0 through E.
- IQMESH Network Manager (Right):** Shows the Coordinator Address as 0. It includes a Control panel with Map View and Table View buttons. It displays Zones: 1, Bonded Nodes: 5, Discovered Nodes: 5, and View: MID. Selected Nodes are 2 <2,3>. The main area shows a network topology diagram for Zone 0, with a central green node 0 connected to five blue nodes: 1 (033B), 2 (0339), 3 (033E), 4 (0349), and 5 (033D).
- Terminal Log (Bottom):** Shows a table of captured data. The first row is a Request: 00.00.00.02.FF.FF. The second row is a Response: 00.00.00.82.0F.00.00.00.3E.00.C.

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Describe the picture...





# **IQRF SDK @ <https://github.com/iqrfsdk>**

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- Make easy integration of DPA with controlling systems
- **Java framework** for DPA
- **C** libraries for **Arduino a chipKIT**, update for IQRF and DPA
- **C++** library **Linux** type **Raspberry PI, Turis Omnia, Intel AAEON GW** etc. under development
- **OTA** support under development
- Demo with **MQTT** protocol toward the clouds



# OTA

Over-the-air

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Supported by DPA only. “Pure C code application” not supported  
Virtually everything can be updated over the IQRF MESH network  
So no need dismantle hundreds of lamps from mobile platform and one-by-one TR update  
When talking about code – basic concept is, that the data are 1<sup>st</sup> to be stored at external EEPROM and then loaded into Flash  
The external EEPROM can hold multiple items – handlers, DPAs, even IQRF OSS  
Full support from DPA API and from IQRF IDE  
In the future will be Selective (affected Nodes can be selected) from the IDE



# OTA

## Custom DPA Handler

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Just store your Custom DPA Handler(s) (CDH) into EEPROM and switch them (reset is required)

Useful for upgrades, testing, demos



# OTA

## .iqrif Files (DPA)

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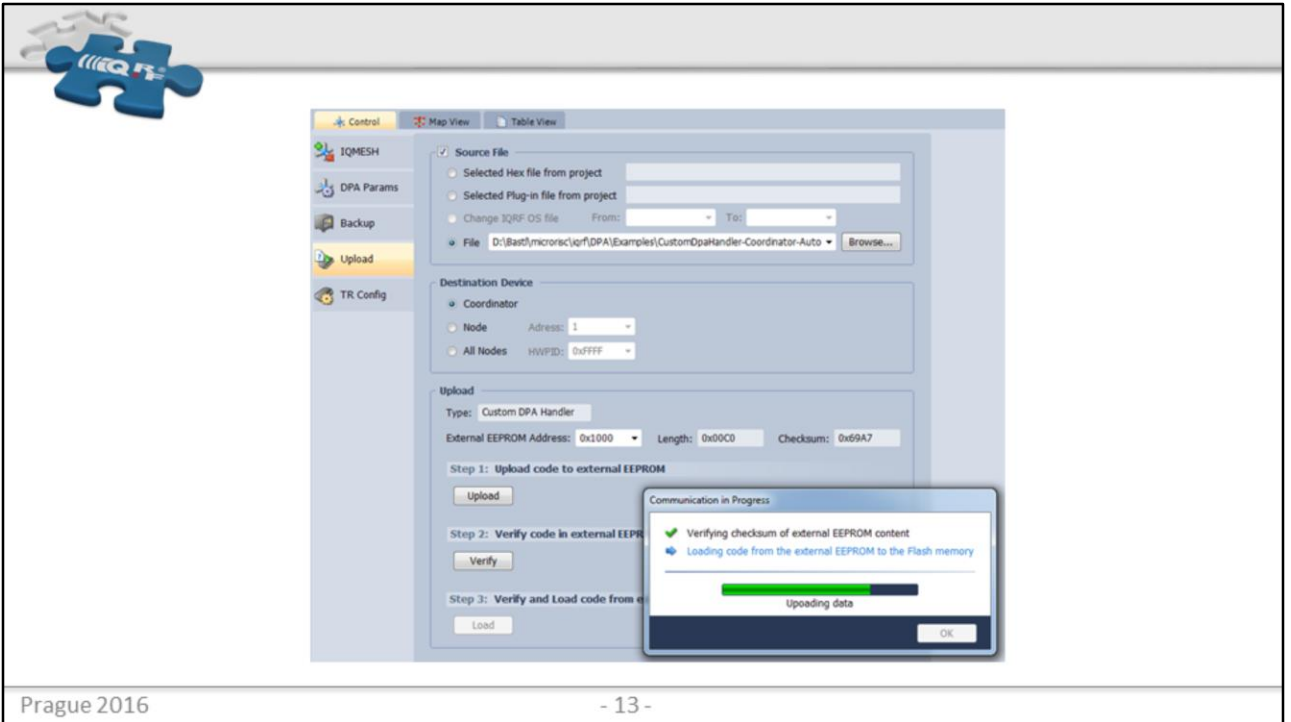
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Similar to the CDH

.iqrif files store a code in the encrypted way

.iqrif files are used to distribute DPA

So again – new DPA release? Update it over the whole network



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Describe the picture...



# OTA

## IQRF OS Update

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Same concept but in this case the special CDH (doing the actual IQRF OS change) must be uploaded

When the change is done, upload your original handler pre-stored at the external EEPROM



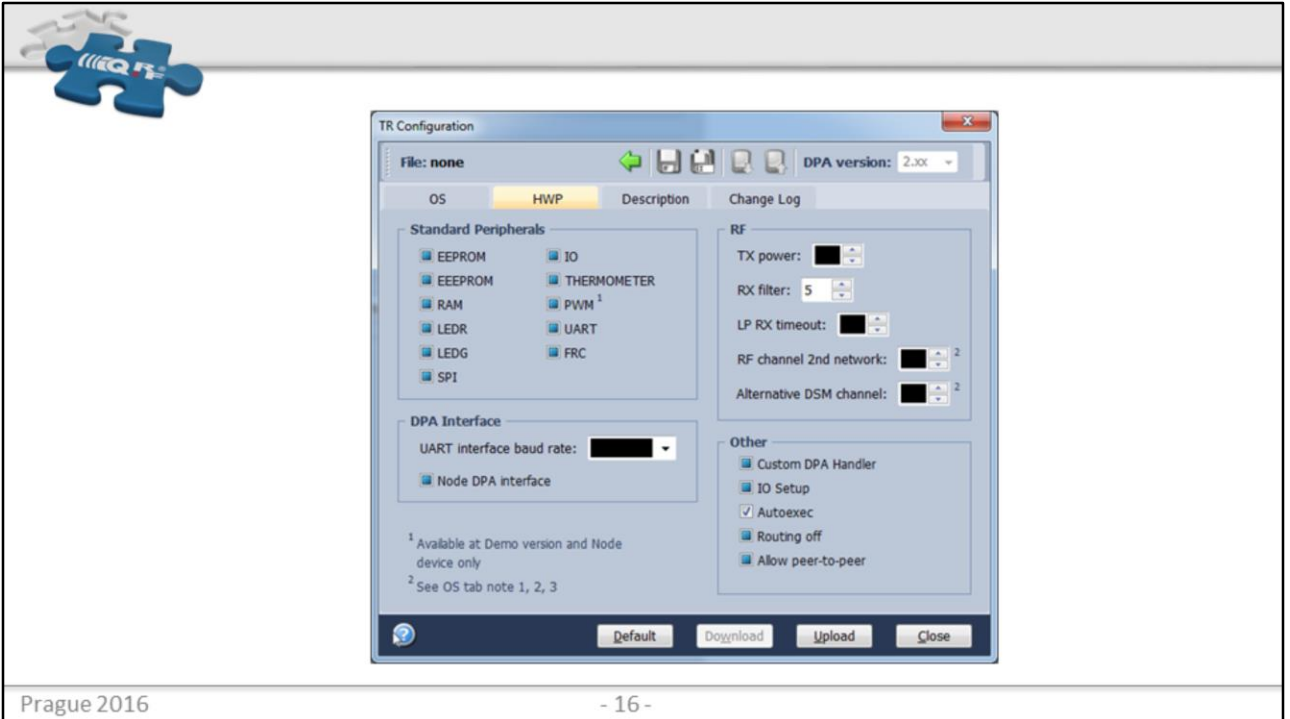
# OTA

## Configuration

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Allows to finely configure existing IQRF MESH devices over the DPA  
Finely means that the configuration is selective on configuration “byte” or even “bit” level  
So you can e.g. change the RX filter and enable Autoexec at heterogeneous Nodes without affecting the rest of their configuration



Describe the picture...





# OTA

## DEMO

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# Q&A



Thank You! Thank You! Thank  
You! Thank You! Thank You!  
Thank You! **Thank You!** Thank  
You! Thank You! Thank You!  
Thank You! Thank You! Thank