

BG96 ThreadX DAM Solution Presentation

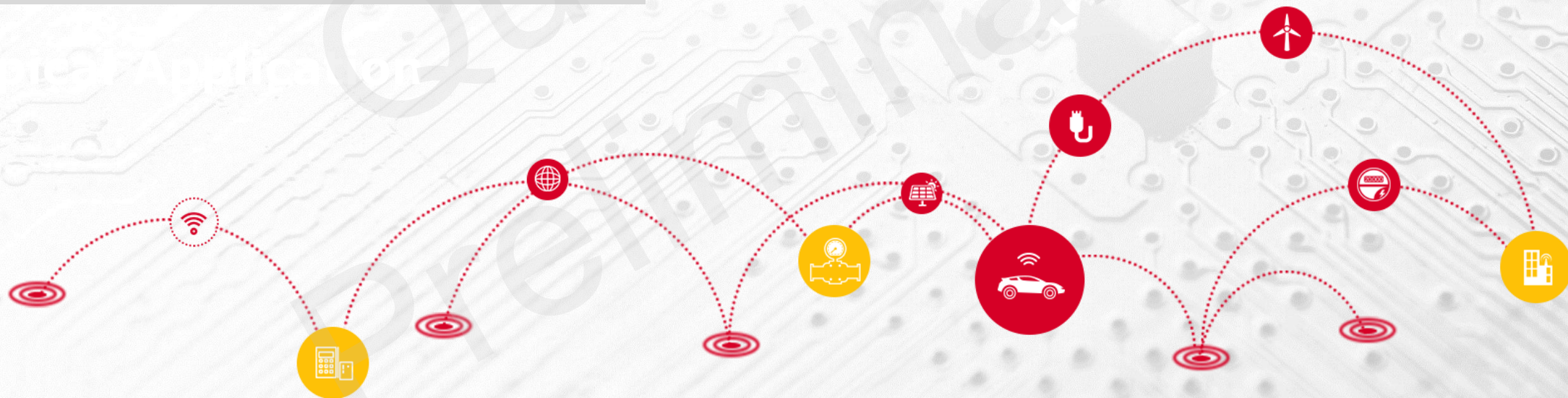
Aug, 2017

ThreadX DAM Overview

How to Run DAM

How to Update DAM

Typical Applications



ThreadX DAM Overview

ThreadX with Downloadable Application Modules (ThreadX with DAMs) provides an infrastructure for applications to dynamically load modules that are built from the resident component of the application.

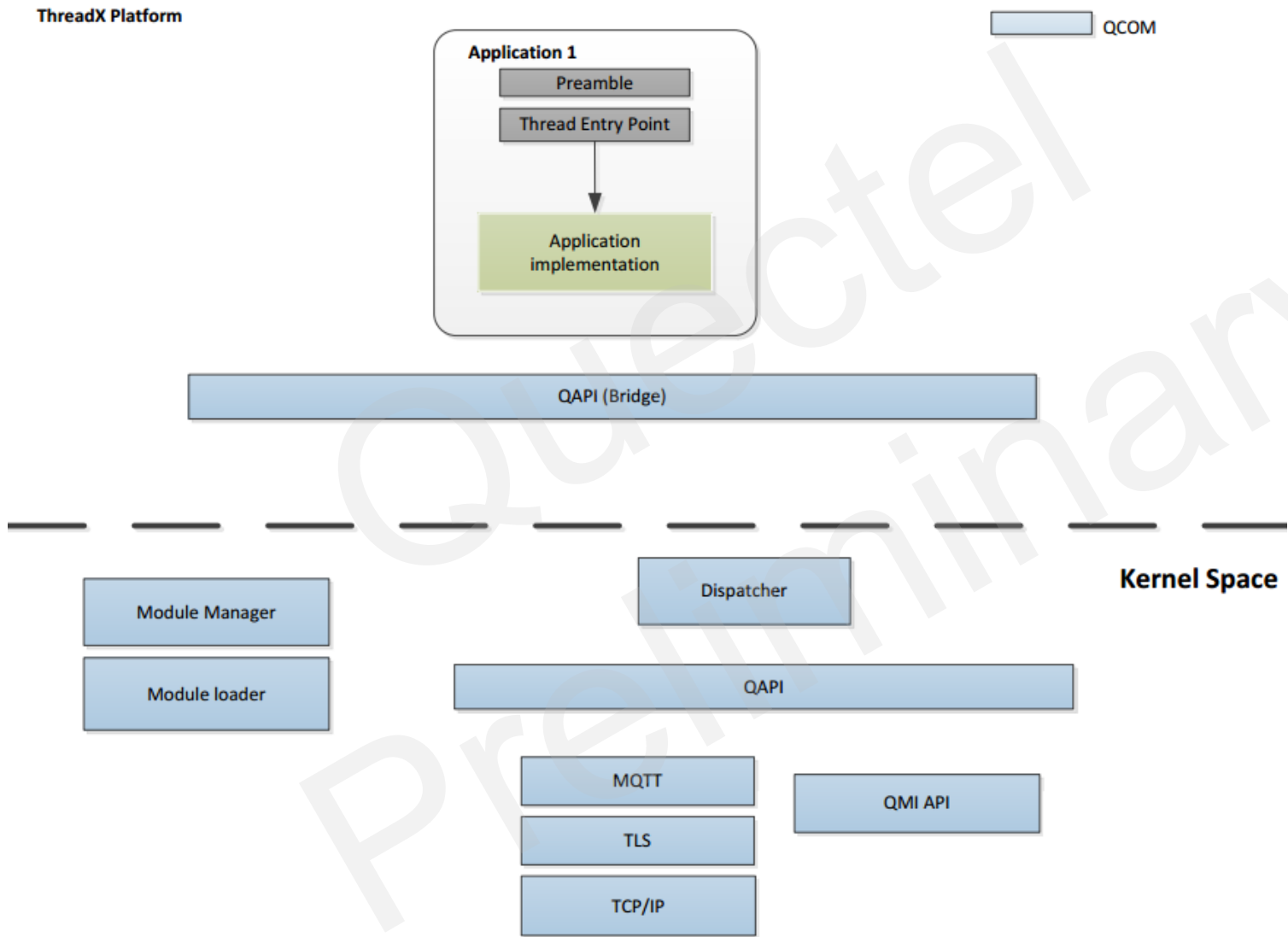
The module is useful for the following scenarios:

- Total application code size exceeds the available memory
- New application modules need to be added after the core image is deployed
- Partial firmware updates are required

Each module is built independently with a common preamble structure attached in the binary. The preamble contains various details about the module:

- a single thread entry point
- stack size priority
- module ID
- callback thread stack size/priority, and so on

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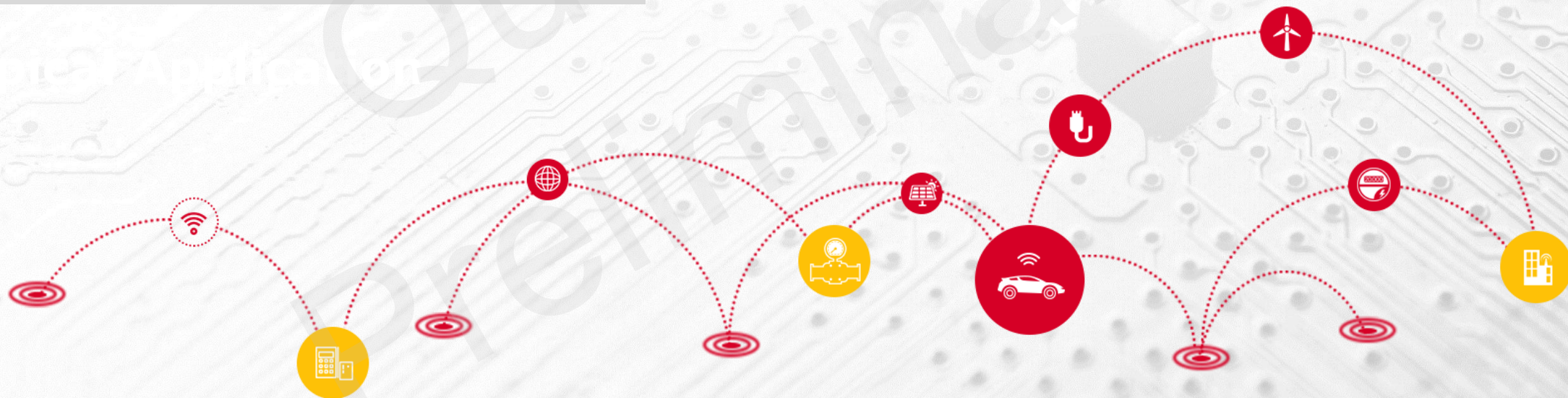


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How to Run DAM

Upload the DAM image to file system and then reset the device. While booting, the module loader can check the DAM image and load it and run.

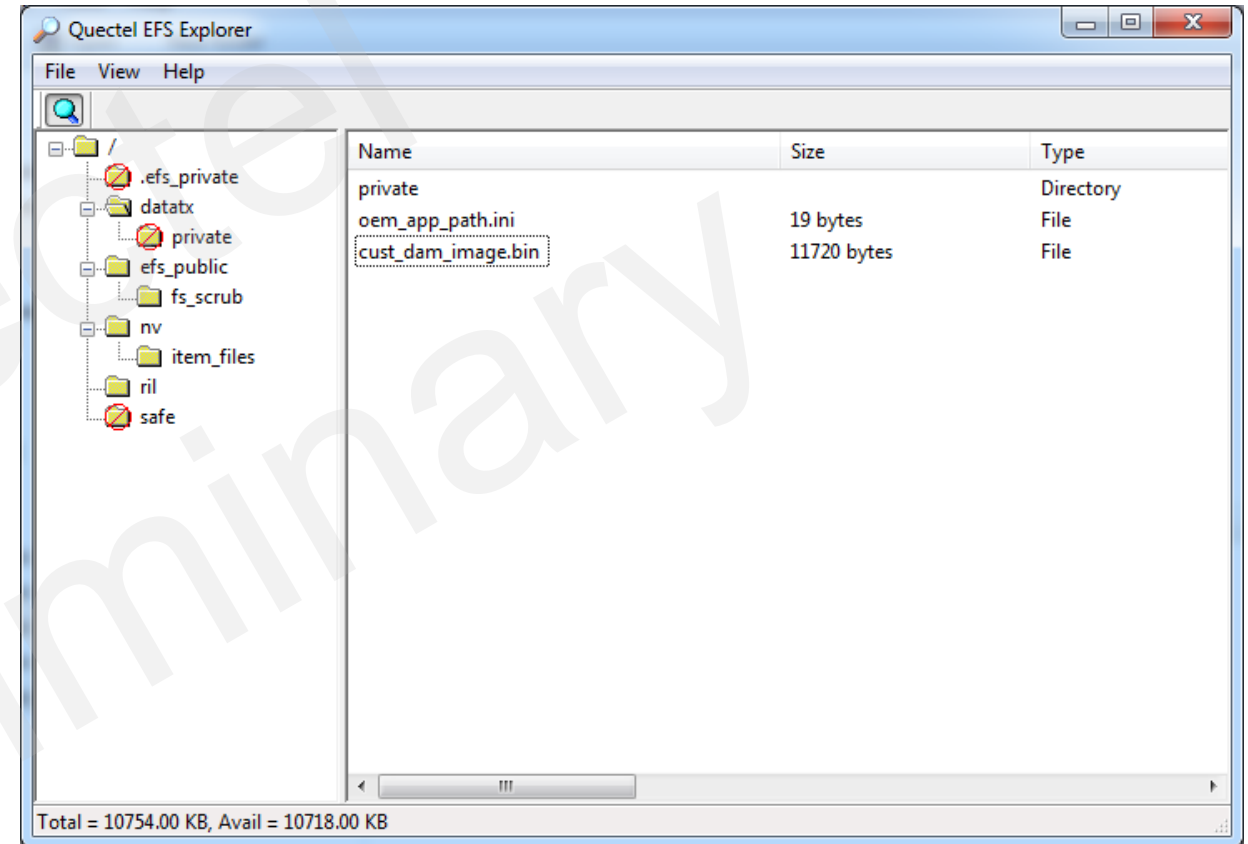
The following two files should be uploaded to the */datax* directory:

- *oem_app_path.ini*

It contains the full path and the name of DAM image, e.g. */datax/cust_dam_image.bin*

- DAM image

The binary image file of DAM.

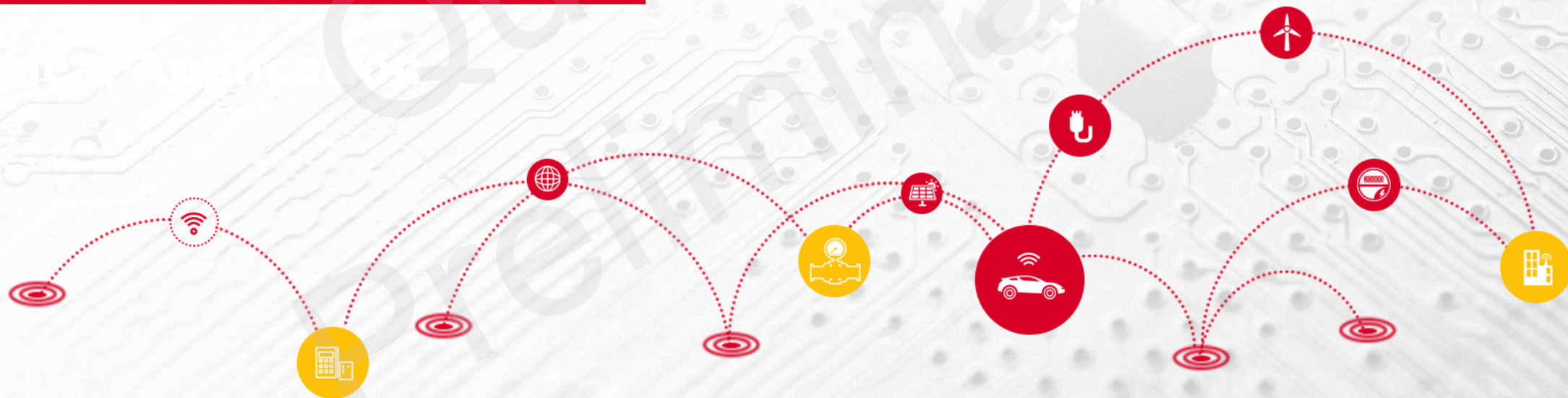


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How to Update DAM

Customers could download their new DAM image form their own Revision Control Server. For example, they can use HTTP(s) to access the HTTP(s) server and download the upgrade image to the file system.

In the file system, there are two places which are used to store the DAM images. For instance, the path to existing Thingspace application could be:

/datax/thingspace_app.bin (**Path 1**)

An upgraded image can be downloaded into:

/datax/upgrade/thingspace_app_upgrade.bin (**Path 2**)

After download completed, customers need to restart the module. While booting, the module loader can check if the **Path 2** is present and loads it.

If loading fails or the file is not present, it reverts to **Path 1**, and will delete **Path 2**.

If it succeeds to load the new app, it will copy **Path 2** to **Path 1**, and will delete **Path 2** after copy completed.

How to Update DAM (Cont.)

Customer must modify the file "***oem_app_path.ini***" for firmware upgrade. This file include the DAM application binary file name and the full path.

The default contents are as follow:

/datatx/thingspace_app.bin

- ❖ *"/datatx/"* is the directory which used to store the DAM application image file.
- ❖ *"thingspace_app.bin"* is the image file of the DAM application.

If customer want add FOTA feature into their DAM application, they must modify the contents as bellow:

/datatx/thingspace_app.bin:/datatx/upgrade/thingspace_app_upgrade.bin

- ❖ *"/datatx/upgrade/"* is the directory which used to store the DAM application image file which to be upgraded.
- ❖ *"thingspace_app_upgrade.bin"* is the image file of the DAM application which to be upgraded.

How to Update DAM (Cont.)

While customer download their new firmware from their server successfully, they need stored the file to the specified path and with specified name, which already specified in the file "***oem_app_path.ini***". After the file checksum is successful, customer could call the QAPI to reset the device. During the device power on, Module Loader will check and load the new firmware to running. At the same time, Module Loader will copy the new firmware to cover old firmware.

Notes:

- ❖ ":" – Delimiter, which distinguish between the path of the original version and the upgraded version.
- ❖ The firmware name and storage path of the old firmware and upgraded firmware are not static. Customers could modify them according to their need. But to the delimiter ":", customers must do not modify it or replace it with other symbol.

Thank you!

7th Floor, Hongye Building, No.1801 Hongmei Road, Xuhui District,
Shanghai 200233, China

Tel: +86-21-5108 6236 Fax: +86-21-5445 3668

Email: info@quectel.com Website: www.quectel.com