Over The Air Update

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Document Synopsis

This document includes the `Software Microservices` release process from the software team, the `Subsystems` **for UI Assemblies, Main Control Assemblies, and Auxiliary Control Assemblies** process for HIL testing of each subsystem, `Full Electrical Systems` testing, and finally OTA Package delivery to the `Connectivity Servers` for deployment. It also has links to the internal system deployment documentation within the system when the OTA bundle is delivered to the`product in the field`.

This document will be the definition for the Process from `Software` check in of `micro services`, to the builds for development, test, release for verification and validation.

This document will also show how the `configurations, capabilities and software` are coupled together for `Subsystems` such as User Interface Asemblies, Main Control Assemblies and Auxiliary Control Assemblies, thus allowing Subsystems to be verified and validated.

In addition to Subsystems verification this document will define the `Systems` verification and validation for coupling all electronics with loads, sensors and switches for systems verification and validation to allow for `Full System Over the Air Updates`.

At each stage of development, verification and validation this will require subsystem and systems items to be delivered to a Production Release Process, upon completion of verification and validation.

Glossary

Glossary

Stakeholder Requirements

1. As a User I want to be able to remotely push software updates that increase the security, performance and/or capabilities of a single appliance or an ecosystem of appliances.
2. As a User I want to be able to stay secure & up-to-date with the latest features, so I can enjoy my product longer with new features throughout the life of the product.
3. As a User I want to be able to add and remove apps from my product to tailor my product to my specific usage patterns and needs, as my life changes.
4. As a User I should be able to choose when and which updates I want to apply to my product, based on my current lifestyle.
5. As a User I should be able to apply full or partial updates at my convenience.
6. As a User I should have a recovery mechanism such as Factory Defaults to return my product to a usable condition should an outage occur such as power, internet service provider, or WiFi Network.
7. As a User I expect the full software update process from start (Time of Initiation) to end (Product is ready to use post software update) to take no more than 10 minutes, as these are my expectation from other devices I currently use.

Kattegatt PoC

Design Team Consumer Experience and Interaction

These are the links to the Design Teams Graphical Assets and Experiences as it pertains to the Over The Air Process on the Appliance Device and on the Mobile Device.

- OTA Sharepoint Link
- OTA Figma Link
- OTA Framer Link - Pending

Software Team Delivery Process and Tool Chain

This is the process as defined by the `SQA (Software Quality Assurance)` Process Owner. This presentation shows the process of micro services from contributors are pushed to the Continuous Development and Continuous Integration Services. In addtiion it shows how code is checked in and to what service or tool, the build process, the test process, and then release of software services to be tested in Subsystems with Configurations.

Over the Air Overall Process

This should reflect the Overall Process for the Over the Air Update.

Software Team Tech Stack MicroServices Delivery

User Interface Software Builds

- Hardware in Loop Testing

Main Control Software Builds

- Hardware in Loop Testing

Auxiliary Boards Software Builds

- Hardware in Loop Testing

Connectivity Boards Software Builds

- Hardware in Loop Testing

Full System Testing

- Full System Verification Testing

Cloud Delivery Method

This is defined by the connectivity cloud team of Principal Architect, Connectivity and Lead System Architect, Connectivity and reflects when the physical assets of software and configuration are delivered to the connectivity team how they deliver to the server for OTA deployment.

Electrical System Update

Below are the links to the Confluence page pertaining to the Over the Air Process. Over The Air Connectivity @ OTA Confluence Page.

json Bundle Script

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{"PNC": "",
"Serial_Number":"",
"Previous_System_CRChecksum":"",
"New_System_CRChecksum":"",
"Number_Of_Modules_To_Program":"",
"System_Modules":
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    "ANC_001":
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        "ANC_Node_Number":"",
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            "Previous_ANC_Version":"",
            "Previous_ANC_Checksum":""
            },
        "New_ANC":
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            "New_ANC_Part_Number":"",
            "New_ANC_Version":"",
            "New_URL":"",
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            "Previous_ANC_Part_Number":"",
            "Previous_ANC_Version":"",
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```

```
        "New_ANC":
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            "New_ANC_Part_Number":"",
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            }
        }
    }
}
```

Dispatching Deployment

Over the Air Connectivity @ OTA

Reprogramming Mechnanism

1. Bootloader - Used to reset, erase and program the specific software for a specific micro.
2. Programming Agent - Used to Dispatch specific software to the specific node to be reprogrammed.
3. Scribe - Ask Lucio is this would be something like your experience using FIT Table for setting partition areas to program specific sectors or pages based on the FIT Table for doing partial updates?
4. Bridge - Used to allow the Programming Agent to reach other nodes in the system beyond the direct connection the Programming Agent or Master Programmer may have acess to.
5. Open Points