Q&A for Tech Talk Topic: Bluetooth Software Structure

Q: Where can I get a copy of the slides?
A: Copies of the slides and recordings of the presentations, including previous presentations, are available at https://www.silabs.com/support/training

Q: Hello, I'm developing an application with a Thunderboard kit that requires more than 100 mA current consumption (about 150 mA). I have checked on the datasheet and found that the limit per I/O is 100 mA, but for VDD power lines is 200 mA, but I'm not able to configure it. Can anyone help me?
A: You can get help with your specific issue by submitting a support ticket at www.silabs.com/support.

Q: Where can I find detailed difference between SoC and NCP?
A: There's a good description of the differences here: https://docs.silabs.com/bluetooth/latest/

Q: Presume your presentation is from the point of view of a peripheral app, not a (scanning) central. Please indicate in the presentation where a central app would be different. e.g. is GATT Configurator ever used for a central app?
A: Yes, the GATT Configurator is used the exact same way for either a central or a peripheral. Our stack allows a device to be a central or a peripheral or both. If your Central device is using NCP mode, then the GATT database files will need to be copied to your host application code.

Q: We have a toolset that we use for all of our products. It likely wouldn't support your BG. How hard is it to pull your code into our microcontroller so your BT works?
A: A good option for you might be our BGX13 Xpress modules, which have all the stack configurations and GATT data already set up as a fixed function. Your MCU would control the BGX module with high-level, very simple API commands. You can learn more about the BGX modules here: https://www.silabs.com/wireless/bluetooth/bgx13-wireless-xpress-modules and the command API here: https://docs.silabs.com/gecko-os/1/bgx/latest/. If you prefer to use our chip/module in NCP mode then we provide the API as ANSI C source code for you to integrate into your application processor code.

Q: Is it true that the bootloader is not used if one loads the app via the SWD interface?
A: Correct, the SWD interface is a direct programming interface, typically used during development and in manufacturing. Once a device is in the field you would use the bootloader to load new application images so you don’t need local access to the debug interface.

Q: Does the GATT Configurator support the custom SiLabs profiles, services, characteristics & descriptors offered? Thinking for example about your serial cable replacement.
A: Yes, the ‘SPP over BLE’ project we provide has the GATT configuration in the project. https://docs.silabs.com/bluetooth/latest/code-examples/applications/spp-serial-port-profile-over-ble

Q: The current BT stack has the limitation that if both notifications and indications have been enabled for a characteristic, my application cannot specify which one to send (it allows you to send a notification). Is there any way to override this? And if not, will this feature be added in a future release?
A: It's not clear why you would need both enabled on the same characteristic since the Central device will only subscribe to one or the other. One possible option could be to set up two characteristics for the same data, or consider using polymorphic GATT (see https://docs.silabs.com/bluetooth/latest/code-examples/stack-features/gatt-protocol/polymorphic-gatt-and-gatt-caching). But maybe we need to understand your use case better. If you need additional help, please submit this on www.silabs.com/support and reference this Tech Talk Q&A.

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Q: What was the initVcomEnable ?
A: It's a GPIO signal that connects from the radio board to the USB interface to enable VCOM so that you can use the UART for debug prints.

Q: Are you going to talk about PTI access? Is there an example app for this? App note?
A: PTI is typically enabled by default on the example projects. You just need to 'connect' to the device and start a capture. We did another Tech Talk specifically covering PTI a few weeks ago and you can still view it here: https://www.silabs.com/support/training/how-to-measure-and-debug-network-performance

Q: Can you set up a concurrent Bluetooth mesh proxy node and iBeacon scanning?
A: Yes, this is a common use case for Bluetooth mesh.

Q: Does the code within each user switch event case statement run without interruption, or can the stack interrupt it in favor of more urgent (internal) tasks? Is there any risk of blocking the stack with a long case code?
A: The stack's lower layers have interrupt priority to maintain critical timing, so yes it is possible that your time consuming code segments could be interrupted.

Q: Can the source/project be built with makefiles and not the IDE? This is useful for continuous integration servers etc.
A: Yes makefiles are generated with the project.

Q: Is there built-in Bluetooth BLE sniffer in these development tools ?
A: You can use our Network Analyzer tool, which is built into Simplicity Studio, to monitor BLE traffic at various levels of depth. This short video might provide a good introduction for you: https://www.silabs.com/support/training/efr32bg22-series-2-bluetooth-wireless-soc/using-network-analyzer-to-debug-bluetooth-connections

Q: I have noticed that some vendors' Linux toolchains do not support everything the Windows toolchain does. Is Simplicity on Linux full featured?
A: There are a couple tools which are Windows only (Z-Wave Zniffer and PC Controller come to mind) but otherwise the Linux version of Simplicity Studio is full featured.

Q: How do things change when you use Bluetooth with Micrium RTOS?
A: Our AN1114 provides a good tutorial on this: https://www.silabs.com/documents/public/application-notes/an1114-integrating-bluetooth-applications-with-rtos.pdf

Q: Great presentation series, SL! Please consider giving a talk on configuring the BLE Security Manager and exploring its features.
A: Thank you for the feedback, we will consider your suggestion. You might also consider watching this Tech Talk which was dedicated to using security in our Series 2 devices: https://www.silabs.com/support/training/secure-vault. And also, one of the labs in our BG22 Virtual Workshop is dedicated to using the Root-of-Trust and secure OTA features. See https://www.silabs.com/about-us/events/virtual-bluetooth-workshop

Q: Can I use any GATT profile with your BG22, or am I limited to only the ones you support?
A: You can use any GATT profile with our parts, including any custom profiles you create. The ones listed in our GATT Configurator tool are provided for your convenience. You can also use the Bluetooth SIG tool Bluetooth Developer Studio and import those GATT profiles into our GATT Configurator.

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Q: How many GATT services/characteristics do you support with your software.

A: The GATT database consumes RAM, so you can have as many services/characteristics as you need until you run out of RAM.