Chapter 6B: More Classic Bluetooth

Time: 3 Hours

At the end of this chapter you will know about additional Classic Bluetooth Profiles such as A2DP, AVRCP, HSP, HFP, and HID as well as other more advanced topics.

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# Profiles

Classic Bluetooth devices communicate with one another by using one or more of a standard set of profiles (often called services) which is maintained by the Bluetooth Special Interest Group (SIG). By using standard profiles, devices only need to determine the profile to use to start communicating rather than having to transmit the communication parameters themselves. A list of Bluetooth Profiles can be found at:

<https://en.wikipedia.org/wiki/List_of_Bluetooth_profiles>

Some of the more commonly used profiles are:

## Advanced Audio Distribution Profile (A2DP)

The A2DP profile is used for streaming multi-media audio. It is used, for example, when streaming audio from a mobile phone to a wireless headset or a car sound system. This profile is often used in conjunction with AVRCP, HSP, or HFP as described below.

The A2DP profile is designed for a unidirectional audio stream of up to 2 channel stereo. There may be more than one A2DP profile on a single device.

## Audio/Video Remote Control Profile (AVRCP)

The AVRCP profile is designed to provide a standard remote-control interface for devices such as televisions, stereo equipment, in-car navigation systems, etc.

There are several versions available depending on the functionality required, each of which is a superset of the previous version.

|  |  |
| --- | --- |
| Version | Functionality |
| 1.0 | Basic remote (play, pause, stop, etc). |
| 1.3 | 1.0 plus metadata (such as artist, track name, etc.) and player state (such as playing, stopped, etc.) |
| 1.4 | 1.3 plus multiple media player browsing including a "Now Playing" list and search capabilities. Also has support for absolute volume. |
| 1.5 | 1.4 plus corrections/clarifications to absolute volume control |
| 1.6 | 1.5 plus browsing and track information. Support for sending cover art through BIP/OBEX (Basic Imaging Profile and Object Exchange Profile) |

## Headset Profile (HSP)

The HSP provides support for headsets including two-way 64 kbit/sec audio and minimal controls for ringing, answer a call, hang up and adjust the volume.

In a typical headset, A2DP will be used when listening to music since it provides the best quality stereo connection, but HSP will be used when making a phone call since it allows two-way communication.

## Hands-Free Profile (HFP)

The HFP is commonly used to allow car hands-free kits to communicate with mobile phones. It provides relatively low-quality monaural audio to allow the user to control some features of their phone such as making calls, playing music, etc. It is often used with other profiles such as A2DP to provide high quality audio streaming.

## Human Interface Device Profile (HID)

The HID is used for devices such as mice, keyboards, and joysticks.

## OBEX

## PAN, FTP, Image Exchange

## IP

## Device Information

## Health

# HID

# Master

# OTA

# Exercises