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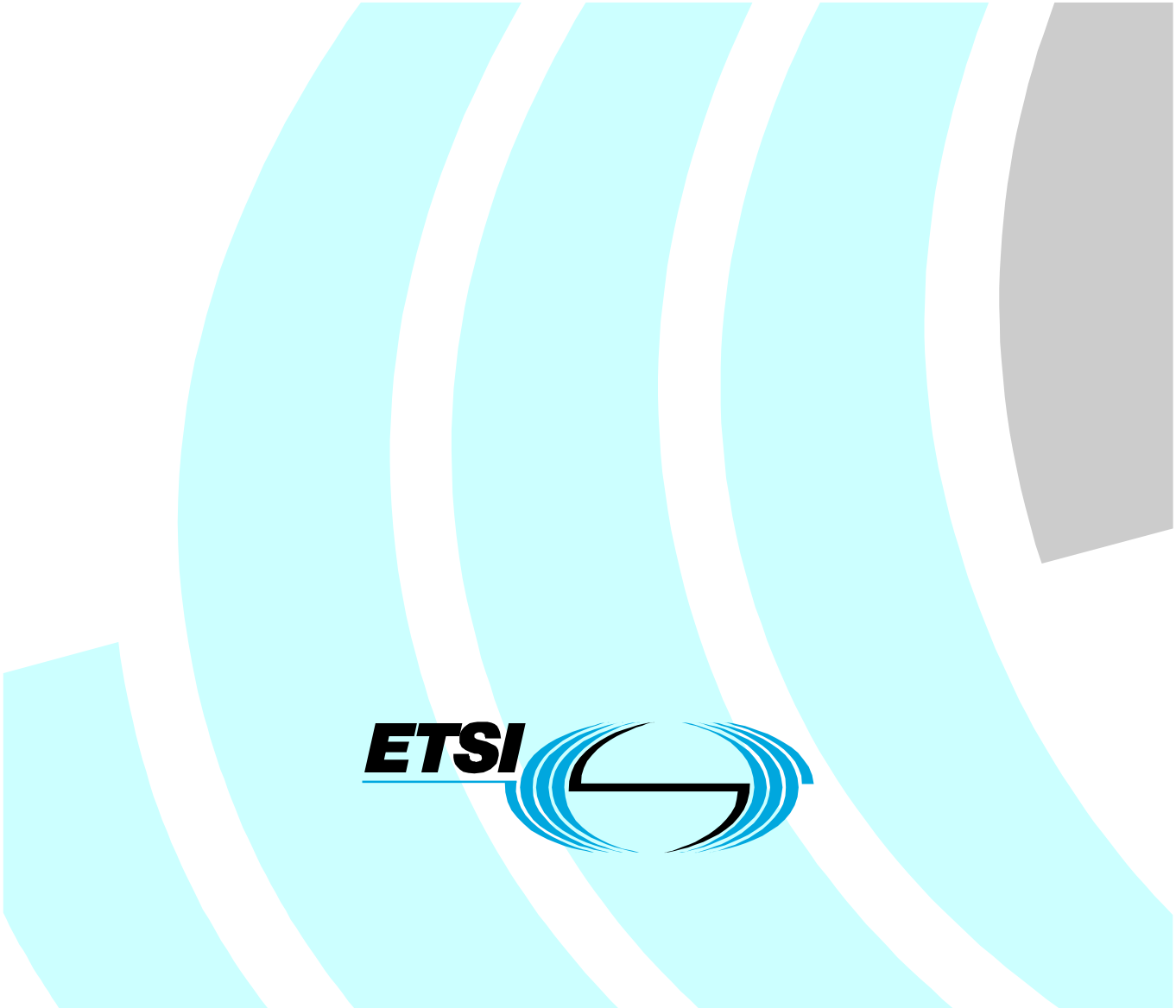
Technical Report

Broadband Radio Access Networks (BRAN);
HIPERLAN Type 2;
Profile Implementation Guide



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Foreword

This Technical Report (TR) has been produced by ETSI Project Broadband Radio Access Networks (BRAN).

Introduction

The term "Profile" describes a list of mandatory features for a certain class of H/2 devices. E.g. a H/2 device supporting the "Home Profile" has to support SSCS 1394, Direct Link, and a certain authentication mode.

The Profile-Id is used to negotiate a set of features instead of negotiating each feature for itself. This approach avoids the time-consuming negotiation of each feature during association and hand-over.

Each H/2 device which claims to support a certain Profile has to support the mandatory features of the basic DLC and the mandatory features of the Profile which are stated in the appropriate document.

1 Scope

The present document describes the Profile mechanism of HIPERLAN/2 [1].

2 References

For the purposes of this Technical Report (TR) the following references apply:

[1] ETSI TR 101 683: "Broadband Radio Access Networks (BRAN); HIPERLAN Type 2; System Overview".

[2] ETSI TS 101 493 (all parts): "Broadband Radio Access Networks (BRAN); HIPERLAN Type 2; Packet based Convergence Layer".

[3] ETSI TS 101 761-1: "Broadband Radio Access Networks (BRAN); HIPERLAN Type 2; Data Link Control (DLC) Layer; Part 1: Basic Data Transport Functions".

[4] ETSI TS 101 761-2: "Broadband Radio Access Networks (BRAN); HIPERLAN Type 2; Data Link Control (DLC) Layer; Part 2: Radio Link Control (RLC) sublayer".

[5] ETSI TS 101 761-3: "Broadband Radio Access Networks (BRAN); HIPERLAN Type 2; Data Link Control (DLC) Layer; Part 3: Profile for Business Environment".

[6] ETSI TS 101 761-5: "Broadband Radio Access Networks (BRAN); HIPERLAN Type 2; Data Link Control (DLC) Layer; Part 5: Profile for Home Environment".

[7] IETF RFC 2734: "IPv4 over IEEE 1394".

[8] IETF RFC 3146: "Transmission of IPv6 Packets over IEEE 1394 Networks".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

Access Point (AP): device that is responsible for the centralized control of the resources in a radio cell

NOTE: It is usually connected to a fixed network.

Central Controller (CC): provides control functionality equivalent to that of an access point in TS 101 761-1 and TS 101 761-2 but is not necessarily attached to a fixed network

Mobile Terminal (MT): device that communicates with an access point or with each other via a radio link

NOTE: It is typically a user terminal.

Profile: selecting functions from the H/2 basic specifications

NOTE: The Profile id and the Profile version number is negotiated during association and handover.

Wireless Terminal (WT): H/2 home device, which is able to associate with a CC and to communicate with the CC in the control plane and with other H/2 home devices in the user and control planes

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

AP	Access Point
BRAN	Broadband Radio Access Networks
CC	Central Controller
CL	Convergence Layer
DLC	Data Link Control
ETSI	European Telecommunication Standard Institute
H/2	HIPERLAN/2
IEEE	Institute of Electrical and Electronics Engineers, Inc.
IETF	Internet Engineering Task Force
MT	Mobile Terminal
RFC	Request For Comments
RLC	Radio Link Control
SSCS	Service Specific Convergence Sublayer
WT	Wireless Terminal

4 Overview

The present document describes the use of Profiles within the H/2 standard, which were introduced in TS 101 761-2 [4].

A Profile specifies the operating environment (business environment, home environment), possible convergence layers and other application-specific features. Certain Profiles are defined for different operating environments. A Profile selects a set of features which are optional in the basic specification and make them mandatory for all devices supporting the specific Profile. Profiles are used to simplify the negotiation of supported features when a device tries to associate to an H/2 network.

All Profiles and the associated Profile-Ids and Profile-Versions are listed in annex B of the present document.

5 Existing Profiles

5.1 Business Profile

The "Business Profile" describes an infrastructure-based H/2 network with a dedicated AP which is also connected to the core network. The list of features which have to be implemented is specified in TS 101 761-3 [5].

5.2 Home Profile

The "Home Profile" describes an adhoc H/2 network targeting audio/video applications. The list of features which have to be implemented is specified in TS 101 761-5 [6].

For Internet Protocol (IP) data there are 2 options:

- IpOver1394 specification by IETF RFC 2734 [7], IETF RFC 3146 [8] on top of 1394 SSCS [2].
- Ethernet SSCS [2] in addition to 1394 SSCS.

6 Usage

6.1 Device Association

The Profiles supported by an H/2 network are announced by the AP/CC using the RLC-RBCH-ASSOCIATION message. This information is received by each MT/WT.

If at least one of the announced Profiles matches a Profile supported by the device, association can be requested. The association is requested by the MT/WT by sending an RLC-MAC-ID-ASSIGN message to the AP/CC.

If there is no matching Profile, the device may still associate with the H/2 network. The AP/CC decides if the MT can associate or not.

NOTE 1: Each MT/WT may support several Profiles but shall use only 1 Profile at a time.

NOTE 2: Each AP/CC may support several Profiles. Several Profiles may be used within one H/2 network.

During the association phase, the Profiles used between AP/CC and MT/WT are negotiated by using the RLC-LINK-CAPABILITY message exchange. Details on the association phase are described in [5] (see also TS 101 761-2 [4]).

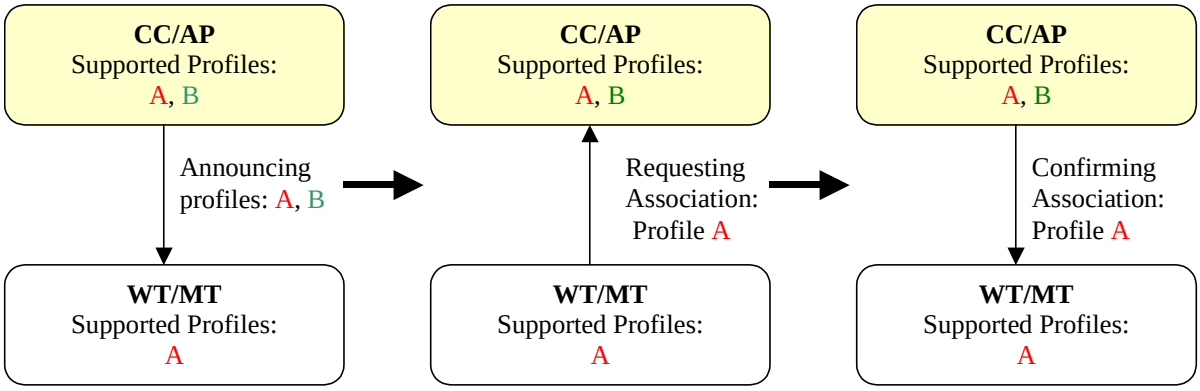

Figure 1: Device association successful

If the Profile-Id of the MT/WT does not match the Profile-id of the AP/CC, and the MT/WT does not detect a better-suited network, the MT/WT tries to associate to the AP/CC. The AP/CC then decides during association if the MT/WT is associated or not. This decision is vendor-specific and depends on the contents of the RLC-LINK-CAPABILITY message, e.g. the CL-Ids, but also depends on security considerations, etc.

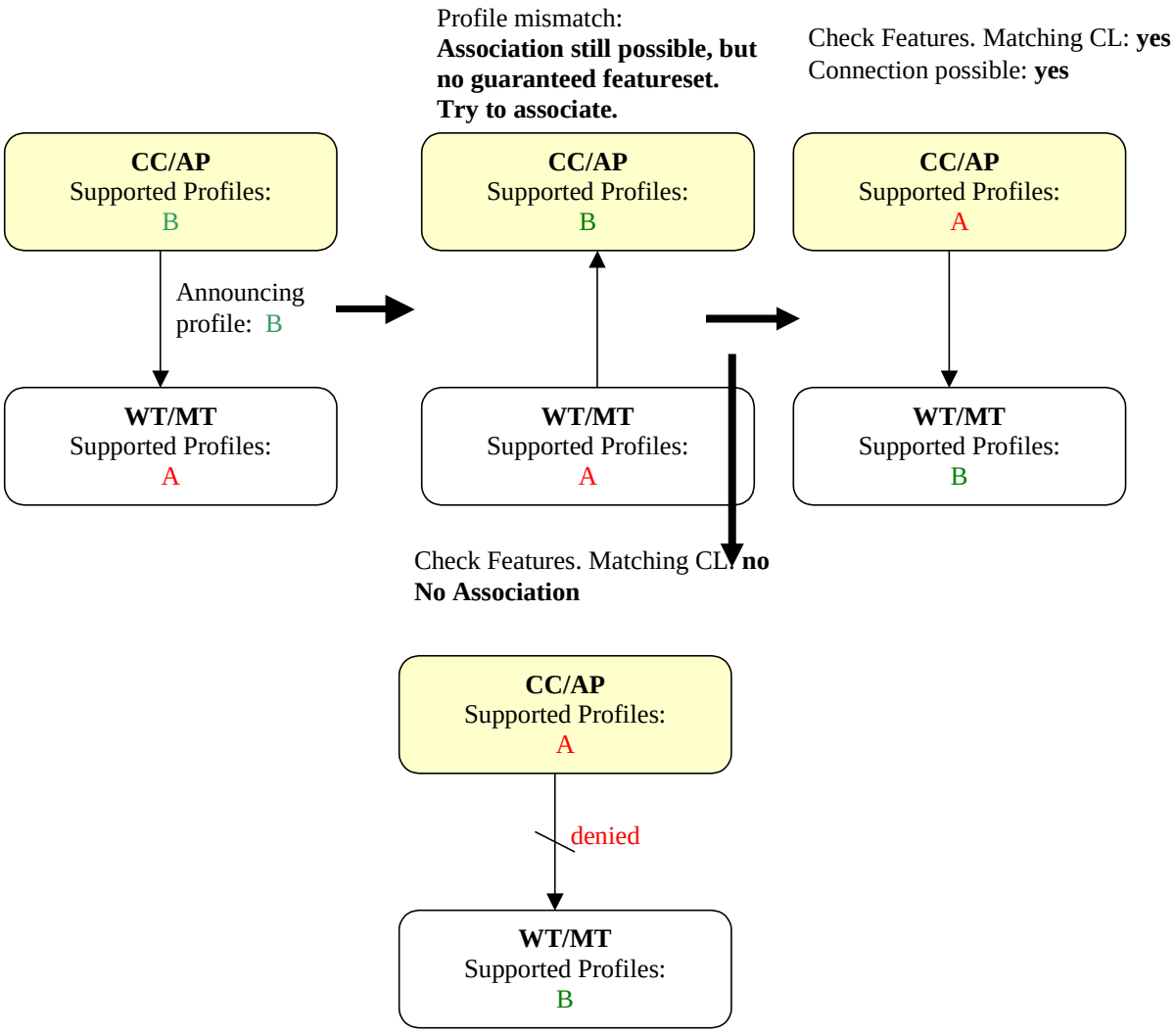

Figure 2: Device association not guaranteed

6.2 Allowed Scenarios

The first matching Profile which is sent in RLC-LINK-CAPABILITY message by the MT/WT shall be used as operating Profile. Multiple Profiles can be used within one H/2 network.

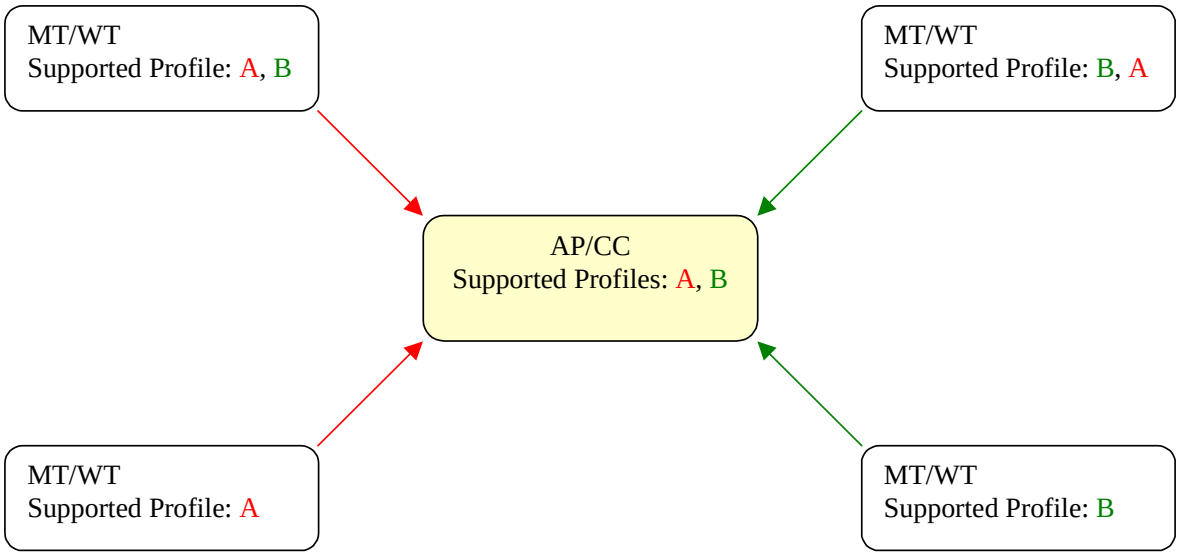

Figure 3: Profile A and B is supported by AP/CC

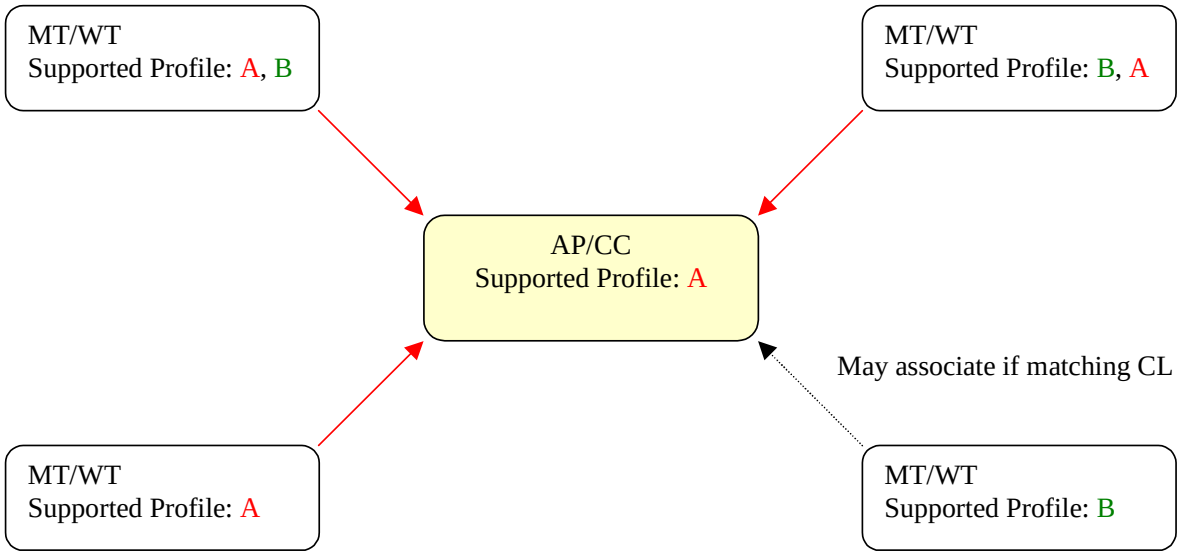

Figure 4: Only Profile A is supported by AP/CC

NOTE: (Only for Home Environment): If the CC detects that a device is not able to associate because of a missing Profile, it may introduce a cc-handover to a better suited cc-capable device.

7 Interoperability

Interoperability is granted only within one Profile. If Profile Ids do not match a device may not work within the network.

Annex A:
Existing Profiles

This annex lists all currently available H/2 Profiles. This list is informative. The normative values for Profile-Id and Profile-Version are found in TS 101 761-3 [5] and TS 101 761-5 [6].

Name	Profile Id	Version	Reference	Description
Business Profile	1	1	TS 101 761-3	Initial version of the Business Profile (Ethernet CL, infrastructure-based)
Home Profile	2	1	TS 101 761-5	Initial version of the Home Profile (1394 CL, adhoc, direct link)

List of figures

History

Document history		
V1.1.1	December 2002	Publication