

- **IEEE 802.21 MEDIA INDEPENDENT HANDOVER**
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- Title: **Amendments to the MIH Capability Discovery**
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- Abstract: This contribution proposes amendments related to the MIH Capability Discovery. It defines new MIH Service IDs, proposes that an MIH_Capability_Discover.request message contains the MIH message data field and suggests only one transport mechanism instead of multiple transport options for each media type. It also suggests a modification of Section 8.4.1.2 in order to clarify its meaning.

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Problem Statements (1)

- Currently the MIH Service ID defines only three services ;
 - 1 : Event Service, 2 : Command Service, 3 : Information Services
- The MIH Message ID defines 17 MIH function messages
 - Most are classified into the above three services
 - Some messages don't belong to any of the three services, such as MIH Capability Discover, MIH Event Register/Deregister, MIH Link Event Configure messages
- Currently the MIH_Capability_Discover.request message doesn't contain MIH message data
- As a result, two capability discovery handshake or capability advertisement procedures to both directions, to the network and to the mobile terminal, are required for peer MIH entities to discover each other's MIH capabilities

Problem Statements (2)

- The MIH protocol has various transport options for the different media types as shown in Section 8.2
- The MIH Protocol proposes a preferred transport option for each media type, but it isn't compulsory
- Therefore, it is possible that the MIH functions in the mobile terminal and the network can't discover each other's capabilities when they use different transport mechanisms, so that they can't communicate with each other

Our Proposal

- Defines new MIH Service IDs for the Capability Discover, Remote Registration and Event Configuration services
- Includes the SupportedEventList and SupportedCommandList in the MIH_Capability_Discover.request message
 - Inform the responder of the requester's MIH capability
 - Shorten the MIH capability discovery handshake procedure from two way to one way
- Describes how only one transport method is needed for each media type
 - MIH functions in the mobile terminal and the network can always discover each other's capabilities
- Presents some modification of Section 8.4.1.2 to clarify its meaning

New Service IDs

- A table showing the Service IDs for the Capability Discovery, Remote Registration and Event Configuration Services (refer to Section 8.3.1)

Name of the Field	Size	Optional/ Mandatory	Description
Protocol Version	1 octet	Mandatory	Version of the MIH protocol. Default: 0x01
MIH Service ID	1 octet	Mandatory	MIH Service Identifier 1 : Event Service 2 : Command Service 3 : Information Service 4 : Capability Discovery 5 : Remote Registration 6 : Event Configuration 7 : Others
...

MIH Message ID Description

- We suggest that the MIH Message ID description part contains all MIH message IDs mapped to the values (refer to Section 8.3.1)
- A table showing all MIH Message IDs

Name of the Field	Size	Optional/ Mandatory	Description
...
MIH Message ID	4 octet	Mandatory	Actual MIH Message identifier for the service identified above. 1 : MIH Capability Discover 2 : MIH Event Register 3 : MIH Event Deregister 4 : MIH Link Event Configure 5 : MIH Link Up 6 : MIH Link Going Down 7 : MIH Link Event Rollback 8 : MIH Link Parameters Change 9 : MIH SDU Transmit Success 10 : MIH SDU Transmit Failure 11 : MIH Command Discover 12 : MIH Network Address Information 13 : MIH Handover Initiate 14 : MIH Handover Prepare 15 : MIH Handover Complete 16 : MIH Information Request 17 : MIH Information Response 20+ : Reserved
...

MIH Function Message Table

- A table showing the proposed column titles of the MIH function messages table (refer to Section 8.3.2)

MIH Message Identifier	Value (instead of No)	MIH Opcode	Service ID (instead of Category)
MIH Capability Discover	1	Request, Response	Capability Discovery
MIH Event Register	2	Request, Response	Registration
MIH Event Deregister	3	Request, Response	Registration
MIH Link Event Configure	4	Request, Response	Event Configuration
MIH Link Up	5	Indication	Event Service
MIH Link Going Down	6	Indication	Event Service
...
MIH Information Request	16	Request	Information Service
MIH Information Response	17	Response	Information Service
...
<i>Reserved</i>	20+		<i>Reserved</i>

MIH_Capability_Discover.request

- This message is proposed to contain SupportedEventList and SupportedCommandList in its MIH message data like the MIH_Capability_Discover.response message (refer to Section 8.4.1)
Both peer MIH function entities get to know each other's MIH capabilities and the list of supported events and commands through an MIH capability discovery handshake procedure,

MIH Protocol Transport

- A table showing just one transport option for each media type (refer to Section 8.2)

MIH functions in the mobile terminal and the network can always discover each other's capabilities

Media Type	Transport
Ethernet	L2 (Data Plane)
802.11	L2 (Management Plane)
802.16	L2 (Management Plane)
3GPP	L3
3GPP2	L3

Minor Text Modification

- In Section 8.4.1.2
 - Only MIHF capable entity can receive MIH_Capability_Discover.request
Only MIHF capable entity **using the same transport method as the peer MIHF** can receive MIH_Capability_Discover.request
 - Destination addresses **are** copied from the MIH_Capability_Discover.request and source addresses **are** filled with its addresses.
The Destination address is copied **from the source address of the MIH_Capability_Discover.request** and source address is filled with its address.

Summary

- Proposals;
 - New MIH Service IDs
 - MIH_Capability_Discover.request message to contain the MIH message data field
 - Only one transport mechanism to be used for each media type
 - Modification of Section 8.4.1.2 to clarify its meaning