

# Mobile IPv6 Advanced Socket API Extensions

draft-chakrabarti-mobileip-mipext-  
advapi-02.txt

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# Background

- **An extension to IPv6 Advanced Socket API (RFC 3542)**
- **Contains data structures, definitions and access methods for Mobile IPv6 extensions to IPv6 Protocol header**
  - [Mobility Header, Home Address Destination Option and Routing Header Type 2](#)
- **Mobile IPv6 specific debugging, tracing , policy apps can use them**
- **Combined effort of both IPv6 and MIPv6 WG**
- **Presented at previous IETF meetings**

# Resolved Issues

- **New protocol name for the API**  
**Resolved : IPPROTO\_MH as protocol number and ipv6-mh in /etc/protocols**
- **A new header file for mobility header related definitions and structures**  
**<netinet/ip6mh.h>**
- **Prefix to use for data structures and definitions**  
For mobility headers: struct ip6\_mh for fixed mobility header  
ip6mh\* for prefix of fields of mobility header data structure  
Message Type defines: IP6\_MH\_\*
- **HA ICMPv6 related definitions and structures (consistent with rfc3542)**  
**DHAAD, MPA, MPS and ND changes are incorporated in**  
**<netinet/icmp6.h>**
- **Type 2 Routing Header and home address destination option structures**  
**are in <netinet/ip6.h>**
- **An implementation may allow an application to set MH , RH Type 2 or**  
**Home address option – usually it is only done at kernel level**

# Updates in revision 02

- **Setting IPV6\_CHECKSUM for IPPROTO\_MH**

**Resolved :** An application SHOULD set checksum with IPPROTO\_MH/RAW socket for portability. However, a Mobile IPv6 implementation must implement MH checksum API support at the kernel by default (equivalent to ICMPv6)

- **Restriction on ancillary data objects for HOA option**

RFC3542 restricts one ancillary data object for a particular extension header. Thus it does not allow multiple ancillary data objects of the same level/type. Hence an application can not send down more than one ancillary data object of type IPV6\_DSTOPTS. Once the application passes down the ancillary data object with HOA, the kernel is responsible for placing the home-address destination option in the correct order as described in section 6.3 of Mobile IPv6 base spec.

- **Other minor editorial and data structure field name changes for consistency as suggested by WG members**

# Suggested Changes

- **New ICMP messages for Mobile IPv6 (netinet/icmp6.h)**

Change structure definition prefix : mip\_\* → mip6\_\*

Change Mobile IPv6 defines/flags: MIP\_\* → MIP6\_\*

Example:

struct mip\_dhaad\_req → struct mip6\_dhaad\_req

MIP\_HA\_DISCOVERY\_REQUEST → MIP6\_HA\_DISCOVERY\_REQUEST

[ Missed this update in 02 revision ]

- **New value of Mobility header protocol (IPPROTO\_MH)**  
IANA assigned number : 135

# Example Data structures

- Use **ip6\_mh\_\*** for the structure definitions and **ip6mh\*** for the respective fields

example:

```
struct ip6_mh_home_test_init {
    struct ip6_mh ip6mhhti_hdr;
    uint16_t      ip6mhhti_resvd;
    uint32_t      ip6mhhti_cookie[2]; /* 64 bit Cookie by MN */
    /* Followed by optional Mobility Options */
};
```

- Use **IP6\_MH\_\*** for flags and type defines

example:

```
#define IP6_MH_BU_ACK      0x8000
#define IP6_MH_TYPE_BACK  6
```

## Next Step

- There is no known open issues on the draft other than the editorial changes mentioned in the “Suggested Changes” slide.
- Should this draft be a starting point of a working group informational draft as an extension to IPv6 Advanced Socket API?