
4.Packet formats

This section describes the reference Mobile IPv6 packet formats that the Mobile IPv6 Conformance Test utilizes in the test sequences described in section 3. The Mobile IPv6 Conformance Test sends packets in these formats to the target and expects to receive acknowledgement packets in corresponding formats from the target. Details of the packet formats are given in the Test Specification documents.

(9)ICMP Mobile Prefix Solicitation message format(ESP)(MN -> HA)

					8											16										24							32
Ver=6	Traffic Class				Flow Label																												
Payload Length													Next Header=60								Hop Limit												
Source Address(Care-of Address of Mobile Node 128bit)																																	
Destination Address(Home Agent Address 128bit)																																	
Next Header=50					Header Ext Len					Type=1					Option Len=2																		
Option Data=0					Option Data=0					Option Type=201					Option Length=16																		
Home Address of Mobile Node (128bit)																																	
Security Parameters Index(SPI 32bit)																																	
Sequence #(32bit)																																	
Initialization Vector(64bit, in case of DES-CBC)																																	
Type=TBD					Code=0					Checksum																							
Identifier										Reserved																							
Padding(0-255Byte)													Pad Len					Next Header=58															
Authentication Data(variable Len)																																	

(10-2)ICMP unsolicited Mobile Prefix Advertisement message format(ESP)(HA->MN)

		8		16		24		32	
Ver=6	Traffic Class			Flow Label					
Payload Length				Next Header=43			Hop Limit		
Source Address(Home Agent Address 128bit)									
Destination Address(Care-of Address of Mobile Node 128bit)									
Next Header=50			Hdr Ext Len=2		Routing Type=2			Segments Left=1	
Reserved									
Home Address of Mobile Node (128bit)									
Security Parameters Index(SPI 32bit)									
Sequence #(32bit)									
Initialization Vector(64bit, in case of DES-CBC)									
Type=TBD			Code=0		Checksum				
Identifier				M	O	Reserved			
Padding(0-255Byte)				Pad Len			Next Heade=58		
Authentication Data(variable Len)									

(11)Binding Error message (HA -> MN)

											8														16													24																		32
Ver=6		Traffic Class				Flow Label																																																		
Payload Length											Next Header=135								Hop Limit																																					
Source Address(Home Agent Address 128bit)																																																								
Destination Address(Source Address of an invoking Mobile Prefix Solicitation 128bit)																																																								
Payload Proto=59				Header Len				MH Type=7								Reserved																																								
Checksum											Status=1								Reserved																																					
Home Address of Mobile Node (128 bit)																																																								

(15)Home Test Init message format(Receiving HoTI)

							8								16								24								32
Ver=6		Traffic Class				Flow Label																									
Payload Length										Next Header=135								Hop Limit													
Source Address(Home Address of Mobile Node 128bit) [Home Address of Mobile Node#A]																															
Destination Address(Correspondent Node Address 128bit) [Home Address of Mobile Node#B]																															
Payload Proto=59						Header Len=1						MH Type=1						Reserved													
Checksum												Reserved																			
Home Init Cookie (64bit)																															

(17-1)Home Test message format(ESP)(Sending HoT(MN#B->MN#A))

			8				16				24					32
Ver=6	Traffic Class				Flow Label											
Payload Length					Next Header=50					Hop Limit						
Source Address(Care-of Address of Mobile Node#B 128bit)																
Destination Address(Home Agent Address of Mobile Node#B 128bit)																
Security Parameters Index (SPI 32bit)																
Sequence Number (32bit)																
Initialization Vector(64bit, in case of DES-CBC)																
Ver=6	Traffic Class				Flow Label											
Payload Length					Next Header=135					Hop Limit						
Source Address(Home Address of Mobile Node#B 128bit)																
Destination Address(Home Address of Mobile Node#A 128bit)																
Payload Proto=59				Header Len=2				MH Type=3				Reserved				
Checksum					Home Nonce Index											
Home Init Cookie (64bit)																
Home Keygen Nonce (64bit)																
Padding(0-255Byte)					Pad Len					Next Header=41						
Authentication Data(variable Len)																

(18)Home Test message format(ESP)(Receiving HoT)

								8							16											24										32
Ver=6		Traffic Class				Flow Label																														
Payload Length										Next Header=50								Hop Limit																		
<p style="text-align: center;">Source Address(Home Agent Address 128bit) [Home Agent Address of Mobile Node#A]</p>																																				
<p style="text-align: center;">Destination Address(Care-of Address of Mobile Node 128bit) [Care-of Address of Mobile Node#A]</p>																																				
Security Parameters Index (SPI 32bit)																																				
Sequence Number (32bit)																																				
Initialization Vector(64bit, in case of DES-CBC)																																				
Ver=6		Traffic Class				Flow Label																														
Payload Length										Next Header=135								Hop Limit																		
<p style="text-align: center;">Source Address(Correspondent Node Address 128bit) [Home Address of Mobile Node#B]</p>																																				
<p style="text-align: center;">Destination Address(Home Address of Mobile Node 128bit) [Home Address of Mobile Node#A]</p>																																				
Payload Proto=59								Header Len=2								MH Type=3								Reserved												
Checksum										Home Nonce Index																										
Home Init Cookie (64bit)																																				
Home Keygen Nonce (64bit)																																				
Padding(0-255Byte)										Pad Len								Next Header=41																		
Authentication Data (variable Len)																																				

(19) Care-of Test message format (CN->MN)

		8		16		24		32	
Ver=6	Traffic Class			Flow Label					
Payload Length				Next Header=135		Hop Limit			
<p style="text-align: center;">Source Address (Correspondent Node Address 128bit) [Home Address of Mobile Node#B]</p>									
<p style="text-align: center;">Destination Address (Care-of Address of Mobile Node 128bit) [Care-of Address of Mobile Node#A]</p>									
Payload Proto=59			Header Len=2		MH Type=4		Reserved		
Checksum					Care-of Nonce Index				
<p style="text-align: center;">Care-of Init Cookie (64bit)</p>									
<p style="text-align: center;">Care-of Keygen Nonce (64bit)</p>									

(19-1) Care-of Test message format(ESP)(Sending CoT(MN#B->MN#A))

			8			16			24			32		
Ver=6			Traffic Class			Flow Label								
Payload Length				Next Header=50				Hop Limit						
Source Address(Care-of Address of Mobile Node#B 128bit)														
Destination Address(Home Agent Address of Mobile Node#B 128bit)														
Security Parameters Index (SPI 32bit)														
Sequence Number (32bit)														
Initialization Vector(64bit, in case of DES-CBC)														
Ver=6			Traffic Class			Flow Label								
Payload Length				Next Header=135				Hop Limit						
Source Address(Home Address of Mobile Node#B 128bit)														
Destination Address(Care-of Address of Mobile Node#A 128bit)														
Payload Proto=59			Header Len=2			MH Type=4			Reserved					
Checksum				Care-of Nonce Index										
Care-of Init Cookie (64bit)														
Care-of Keygen Nonce (64bit)														
Padding(0-255Byte)				Pad Len				Next Header=41						
Authentication Data (variable Len)														

(20-1)Binding Update message format(MN->CN)

				8								16								24								32			
Ver=6				Traffic Class				Flow Label																							
Payload Length								Next Header=60								Hop Limit															
Source Address(Care-of Address of Mobile Node 128bit) [Care-of Address of Mobile Node#A]																															
Destination Address(Correspondent Node Address 128bit) [Home Address of Mobile Node#B]																															
Next Header=135				Header Ext Len				Type=1				Option Len=2																			
Option Data=0				Option Data=0				Option Type=201				Option Length=16																			
Home Address of Mobile Node (128bit) [Home Address of Mobile Node#A]																															
Payload Proto=59				Header Len=1				MH Type=5				Reserved																			
Checksum								Sequence #																							
A=1	H	L	K	Reserved				Lifetime																							
Type=4				Length=4				Home Nonce Index																							
Care-of Nonce Index								Type=5				Length																			
Authenticator(variable Len)																															

(21-1).Binding Acknowledgement message format(CN -> MN)

		8				16				24				32	
Ver=6		Traffic Class				Flow Label									
Payload Length						Next Header=43				Hop Limit					
Source Address(Correspondent Node Address 128bit) [Home Address of Mobile Node#B]															
Destination Address(Source Address of an invoking Binding Update 128bit)															
Next Header=135				Hdr Ext Len=2				Routing Type=2				Segments Left=1			
Reserved															
Home Address of Mobile Node (128bit) [Home Address of Mobile Node#A]															
Payload Proto=59				Header Len				MH Type=6				Reserved			
Checksum						Status				K		Reserved			
Sequence # (=BU)						Lifetime									
Type=1				Option Len=0				Type=5				Length			
Authenticator(variable Len)															

(20-2) Binding Update message format(MN->CN)

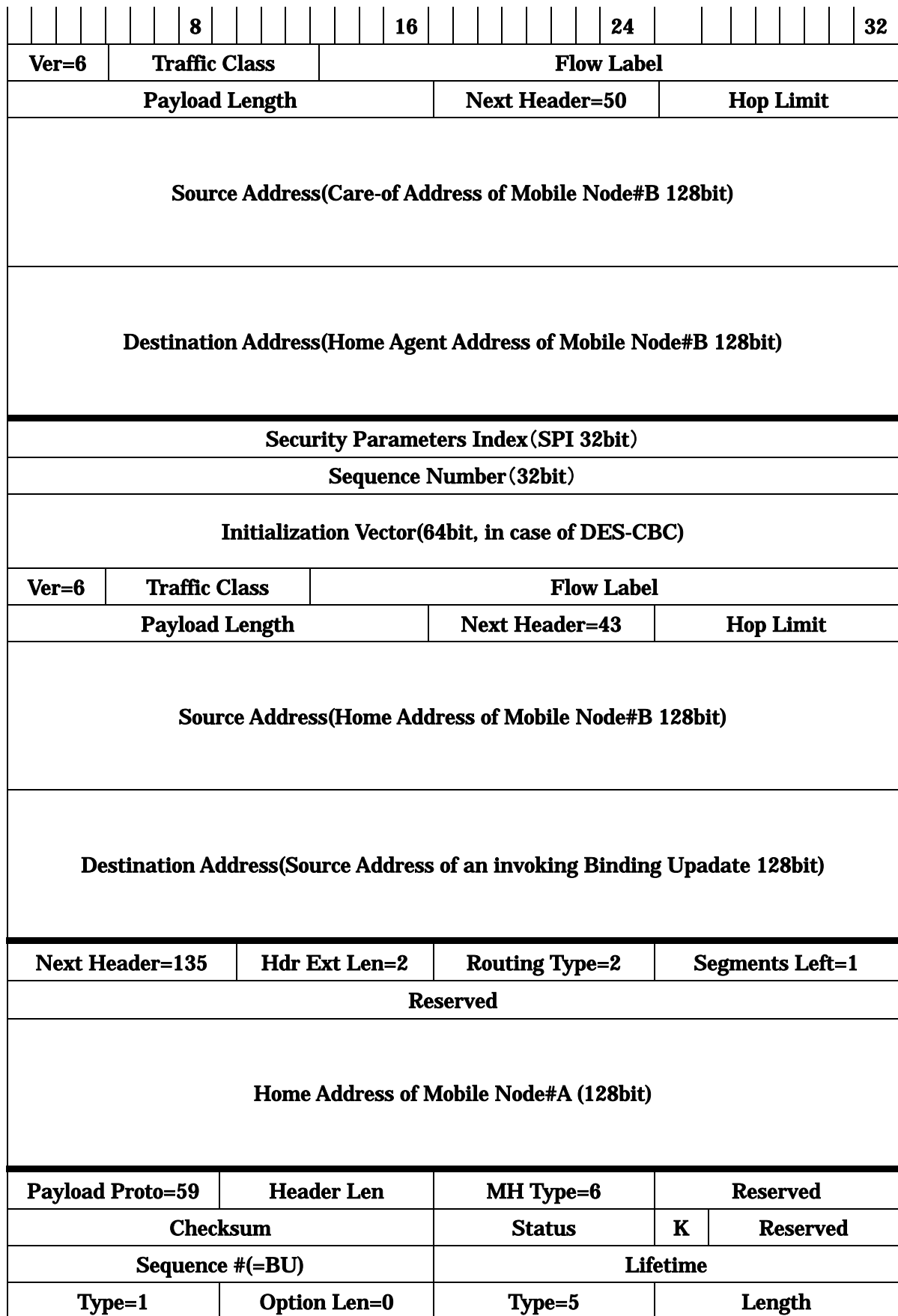
8								1 6						2 4				32					
Ver=6				Traffic Class				Flow Label															
Payload Length								Next Header=135				Hop Limit											
Source Address(Home Address of Mobile Node 128bit) [Home Address of Mobile Node#A]																							
Destination Address(Correspondent Node Address 128bit) [Home Address of Mobile Node#B]																							
Payload Proto=59				Header Len=1				MH Type=5				Reserved											
Checksum								Sequence #															
A=	H	L	K	Reserved								Lifetime=0											
1				Type=4				Length=4				Home Nonce Index											
Care-of Nonce Index								Type=5				Length											
Authenticator(variable Len)																							

(20-3)Binding Update message format(ESP)(Receiving BU(MN#A->MN#B))

8																16																24																32															
Ver=6				Traffic Class				Flow Label																																																							
Payload Length																Next Header=50																Hop Limit																															
Source Address(Home Agent Address of Mobile Node#B 128bit)																																																															
Destination Address(Care-of Address of Mobile Node#B 128bit)																																																															
Security Parameters Index(SPI 32bit)																																																															
Sequence Number (32bit)																																																															
Initialization Vector(64bit, in case of DES-CBC)																																																															
Ver=6				Traffic Class				Flow Label																																																							
Payload Length																Next Header=60																Hop Limit																															
Source Address(Care-of Address of Mobile Node#A 128bit)																																																															
Destination Address(Home Address of Mobile Node#B 128bit)																																																															
Next Header=135																Header Ext Len																Type=1																Option Len=2															
Option Data=0																Option Data=0																Option Type=201																Option Length=16															
Home Address of Mobile Node#A (128bit)																																																															
Payload Proto=59																Header Len=1																MH Type=5																Reserved															
Checksum																Sequence #																																															
A=1	H	L	K	Reserved												Lifetime																																															

Type=4	Length=4	Home Nonce Index	
Care-of Nonce Index		Type=5	Length
Authenticator(variable Len)			
Padding(0-255Byte)		Pad Len	Next Header=41
Authentication Data (variable Len)			

(21-3).Binding Acknowledgement message format(ESP)(Sending BA(MN#B->MN#A))



Authenticator(variable Len)		
Padding(0-255Byte)	Pad Len	Next Header=41
Authentication Data (variable Len)		

(20-4)Binding Update message format(ESP)(Receiving BU(MN#A->MN#B))

8								1 6								2 4								32							
Ver=6				Traffic Class				Flow Label																							
Payload Length								Next Header=50				Hop Limit																			
Source Address(Home Agent Address of Mobile Node#B 128bit)																															
Destination Address(Care-of Address of Mobile Node#B 128bit)																															
Security Parameters Index(SPI 32bit)																															
Sequence Number (32bit)																															
Initialization Vector(64bit, in case of DES-CBC)																															
Ver=6				Traffic Class				Flow Label																							
Payload Length								Next Header=135				Hop Limit																			
Source Address(Home Address of Mobile Node#A 128bit)																															
Destination Address(Home Address of Mobile Node#B 128bit)																															
Payload Proto=59				Header Len=1				MH Type=5				Reserved																			
Checksum								Sequence #																							
A=	H	L	K	Reserved								Lifetime=0																			
1																															
Type=4				Length=4				Home Nonce Index																							
Care-of Nonce Index								Type=5				Length																			

Authenticator(variable Len)		
Padding(0-255Byte)	Pad Len	Next Header=41
Authentication Data (variable Len)		

Authentication Data (variable Len)

(22-1)Binding Refresh Request message format(Sending BRR)

				8									16							24									32
Ver=6			Traffic Class					Flow Label																					
Payload Length											Next Header=135						Hop Limit												
Source Address(Correspondent Node Address 128bit)																													
Destination Address(Home Address of Mobile Node 128bit)																													
Payload Proto=59					Header Len					MH Type=0					Reserved														
Checksum											Reserved																		

(22-3) Binding Refresh Request message format(ESP)(Sending BRR(MN#B->MN#A))

8	16	24	32
Ver=6	Traffic Class	Flow Label	
Payload Length		Next Header=50	Hop Limit
Source Address(Care-of Address of Mobile Node#B 128bit)			
Destination Address(Home Agent Address of Mobile Node#B 128bit)			
Security Parameters Index(SPI 32bit)			
Sequence Number(32bit)			
Initialization Vector(64bit, in case of DES-CBC)			
Ver=6	Traffic Class	Flow Label	
Payload Length		Next Header=135	Hop Limit
Source Address(Home Address of Mobile Node#B 128bit)			
Destination Address(Home Address of Mobile Node#A 128bit)			
Payload Proto=59	Header Len	MH Type=0	Reserved
Checksum		Reserved	
Padding(0-255Byte)		Pad Len	Next Header=41
Authentication Data(variable Len)			

(23-1) Payload packet format (MN->CN)

			8							16										24									32
Ver=6		Traffic Class				Flow Label																							
Payload Length											Next Header=60						Hop Limit												
Source Address(Care-of Address of Mobile Node 128bit)																													
Destination Address(Correspondent Node Address 128bit)																													
Next Header=17						Header Ext Len						Type=1						Option Len=2											
Option Data=0						Option Data=0						Option Type=201						Option Length=16											
Home Address of Mobile Node (128bit)																													
Source Port														Destination Port															
Length														Checksum															
Data(variable Len)																													

(24-1) Payload packet format (CN->MN)

	8	16	24	32
Ver=6	Traffic Class	Flow Label		
Payload Length		Next Header=43	Hop Limit	
Source Address(Correspondent Node Address 128bit)				
Destination Address(Care-of Address of Mobile Node 128bit)				
Next Header=17	Hdr Ext Len=2	Routing Type=2	Segments Left=1	
Reserved				
Home Address of Mobile Node (128bit)				
Source Port		Destination Port		
Length		Checksum		
Data(variable Len)				

(25-2) Binding Error message (ESP) (Sending BE (MN#B->MN#A))

					8											16												24											32
Ver=6		Traffic Class					Flow Label																																
Payload Length										Next Header=50										Hop Limit																			
Source Address (Care-of Address of Mobile Node#B 128bit)																																							
Destination Address (Home Agent Address of Mobile Node#B 128bit)																																							
Security Parameters Index (SPI 32bit)																																							
Sequence Number (32bit)																																							
Initialization Vector (64bit, in case of DES-CBC)																																							
Ver=6		Traffic Class					Flow Label																																
Payload Length										Next Header=135										Hop Limit																			
Source Address (Home Address of Mobile Node#B 128bit)																																							
Destination Address (Source Address of an invoking packet with Home Address option 128bit)																																							
Payload Proto=59					Header Len					MH Type=7					Reserved																								
Checksum										Status=1										Reserved																			
Home Address of Mobile Node#A (128 bit)																																							
Padding (0-255Byte)										Pad Len										Next Header=41																			
Authentication Data (variable Len)																																							

Appendix

(1*)Binding Update message format(MN -> HA)

				8					16					24					32
Ver=6				Traffic Class				Flow Label											
Payload Length								Next Header=60				Hop Limit							
Source Address(Care-of Address of Mobile Node 128bit)																			
Destination Address(Home Agent Address 128bit)																			
Next Header=135				Header Ext Len				Type=1				Option Len=2							
Option Data=0				Option Data=0				Option Type=201				Option Length=16							
Home Address(128bit)																			
Payload Proto=59				Header Len=1				MH Type=5				Reserved							
Checksum								Sequence #											
A	H	L	K	Reserved				Lifetime											
Type=1				Option Len=2				Option Data=0				Option Data=0							

(3*)Payload packet format(ESP)(Sending Packet to CN)

		8				16				24				32	
Ver=6	Traffic Class				Flow Label										
Payload Length						Next Header=50			Hop Limit						
Source Address(Care-of Address of Mobile Node 128bit)															
Destination Address(Home Agent Address 128bit)															
Security Parameters Index(SPI 32bit)															
Sequence Number(32bit)															
Initialization Vector(64bit, in case of DES-CBC)															
Ver=6	Traffic Class				Flow Label										
Payload Length						Next Header=17			Hop Limit						
Source Address(Home Address of Mobile Node 128bit)															
Destination Address(Correspondent Node Address 128bit)															
Source Port								Destination Port							
Length								Checksum							
Data(variable Len)															
Padding(0-255Byte)								Pad Len			Next Header=41				
Authentication Data(variable Len)															

(6*)Payload packet format(ESP)(Receiving Packet from CN)

	8	16	24	32
Ver=6	Traffic Class	Flow Label		
Payload Length		Next Header=50	Hop Limit	
Source Address(Home Agent Address 128bit)				
Destination Address(Care-of Address of Mobile Node 128bit)				
Security Parameters Index(SPI 32bit)				
Sequence Number(32bit)				
Initialization Vector(64bit, in case of DES-CBC)				
Ver=6	Traffic Class	Flow Label		
Payload Length		Next Header=17	Hop Limit	
Source Address(Correspondent Node Address 128bit)				
Destination Address(Home Address of Mobile Node128bit)				
Source Port		Destination Port		
Length		Checksum		
Data(variable Len)				
Padding(0-255Byte)		Pad Len	Next Header=41	
Authentication Data(variable Len)				

(9*)ICMP Mobile Prefix Solicitation message format(MN -> HA)

								8										16																24												32
Ver=6		Traffic Class				Flow Label																																								
Payload Length										Next Header=60								Hop Limit																												
Source Address(Care-of Address of Mobile Node 128bit)																																														
Destination Address(Home Agent Address 128bit)																																														
Next Header=58								Header Ext Len								Type=1								Option Len=2																						
Option Data=0								Option Data=0								Option Type=201								Option Length=16																						
Home Address of Mobile Node(128bit)																																														
Type=TBD								Code=0								Checksum																														
Identifier																Reserved																														

(12*) Binding Update message Format(MN -> HA)

				8								16								24								32			
Ver=6				Traffic Class				Flow Label																							
Payload Length								Next Header=135								Hop Limit															
Source Address(Home Address of Mobile Node 128bit)																															
Destination Address(Home Agent Address 128bit)																															
Payload Proto=59						Header Len=1						MH Type=5						Reserved													
Checksum												Sequence #																			
A	H	L	K	Reserved								Lifetime=0																			
Type=1				Option Length=2				Option Data=0				Option Data=0																			

(13*) Binding Acknowledgement message format(HA -> MN)

8	16	24	32
Ver=6	Traffic Class	Flow Label	
Payload Length		Next Header=135	Hop Limit
Source Address(Home Agent Address 128bit)			
Destination Address(Home Address of Mobile Node 128bit)			
Payload Proto=59	Header Len=1	MH Type=6	Reserved
Checksum		Status	K Reserved
Sequence #=BU		Lifetime=0	
Type=1	Option Len=2	Option Data=0	Option Data=0

(19-1*)Care-of Test message format(Sending CoT(MN#B->MN#A))

				8						16						24									32
Ver=6	Traffic Class			Flow Label																					
Payload Length										Next Header=41								Hop Limit							
Source Address(Care-of Address of Mobile Node#B 128bit)																									
Destination Address(Home Agent Address of Mobile Node#B 128bit)																									
Ver=6	Traffic Class			Flow Label																					
Payload Length										Next Header=135								Hop Limit							
Source Address(Home Address of Mobile Node#B 128bit)																									
Destination Address(Care-of Address of Mobile Node#A 128bit)																									
Payload Proto=59						Header Len=2						MH Type=4						Reserved							
Checksum										Care-of Nonce Index															
Care-of Init Cookie (64bit)																									
Care-of Keygen Nonce (64bit)																									

Authenticator(variable Len)

(21-3*).Binding Acknowledgement message format(Sending BA(MN#B->MN#A))

									8								16												24															32
Ver=6	Traffic Class													Flow Label																														
Payload Length												Next Header=41						Hop Limit																										
Source Address(Care-of Address of Mobile Node#B 128bit)																																												
Destination Address(Home Agent Address of Mobile Node#B 128bit)																																												
Ver=6	Traffic Class													Flow Label																														
Payload Length												Next Header=43						Hop Limit																										
Source Address(Home Address of Mobile Node#B 128bit)																																												
Destination Address(Source Address of an invoking Binding Update 128bit)																																												
Next Header=135								Hdr Ext Len=2				Routing Type=2								Segments Left=1																								
Reserved																																												
Home Address of Mobile Node#A (128bit)																																												
Payload Proto=59								Header Len								MH Type=6								Reserved																				
Checksum												Status						K		Reserved																								
Sequence # (=BU)												Lifetime																																
Type=1				Option Len=0								Type=5						Length																										
Authenticator(variable Len)																																												

(20-4*)Binding Update message format(Receiving BU(MN#A->MN#B))

8								1 6								2 4								32															
Ver=6				Traffic Class				Flow Label																															
Payload Length								Next Header=41								Hop Limit																							
Source Address(Home Agent Address of Mobile Node#B 128bit)																																							
Destination Address(Care-of Address of Mobile Node#B 128bit)																																							
Ver=6				Traffic Class				Flow Label																															
Payload Length								Next Header=135								Hop Limit																							
Source Address(Home Address of Mobile Node#A 128bit)																																							
Destination Address(Home Address of Mobile Node#B 128bit)																																							
Payload Proto=59								Header Len=1								MH Type=5								Reserved															
Checksum																Sequence #																							
A=				H				L				K				Reserved																Lifetime=0							
1																																							
Type=4								Length=4								Home Nonce Index																							
Care-of Nonce Index																Type=5								Length															
Authenticator(variable Len)																																							

(21-4*)Binding Acknowledgement message format(Sending BA(MN#B->MN#A))

				8						16						24											32
Ver=6	Traffic Class							Flow Label																			
Payload Length											Next Header=41					Hop Limit											
Source Address(Care-of Address of Mobile Node#B 128bit)																											
Destination Address(Home Agent Address of Mobile Node#B 128bit)																											
Ver=6	Traffic Class							Flow Label																			
Payload Length											Next Header=135					Hop Limit											
Source Address(Home Address of Mobile Node#B 128bit)																											
Destination Address(Source Address of an invoking Binding Update 128bit)																											
Payload Proto=59					Header Len					MH Type=6					Reserved												
Checksum											Status					K	Reserved										
Sequence #(-BU)											Lifetime=0																
Type=1				Option Len=0							Type=5					Length											
Authenticator(variable Len)																											
Padding(0-255Byte)											Pad Len					Next Header=41											
Authentication Data(variable Len)																											

(25-2*)Binding Error message(Sending BE(MN#B->MN#A))

						8						16					24						32
Ver=6	Traffic Class			Flow Label																			
Payload Length												Next Header=41						Hop Limit					
Source Address(Care-of Address of Mobile Node#B 128bit)																							
Destination Address(Home Agent Address of Mobile Node#B 128bit)																							
Ver=6	Traffic Class			Flow Label																			
Payload Length												Next Header=135						Hop Limit					
Source Address(Home Address of Mobile Node#B 128bit)																							
Destination Address(Source Address of an invoking packet with Home Address option 128bit)																							
Payload Proto=59					Header Len					MH Type=7					Reserved								
Checksum										Status=1						Reserved							
Home Address of Mobile Node#A (128 bit)																							

(22-3*)Binding Refresh Request message format(Sending BRR(MN#B->MN#A))

