



	Release	Release	Release	Release	Release	Release	Release	Release	Release	Release	Release
	2.0.2	3.0.3	4.0	5.0.1	6.0.3	7.0.1	7.1	7.3	7.5	8.0	8.2.2
Туре	FRR	FRR	FRR	FRR	FRR	FRR	FRR	FRR	FRR	FRR	FRR
Commit ID	36a7e78	5dff4ec	7a377a1	85f25d8	33e56da	056c0cd	23db048	c0038fc	13a8efb	9931db7	79188bf
Commit Date	2017-11-08	2018-01-09	2018-03-12	2018-07-05	2019-05-09	2019-05-13	2019-06-18	2020-02-14	2021-02-27	2021-07-21	2022-03-13
ANVL-	Setup Verificati	ion									
BGPPLUS-AS4- 1.1		fication Te GGP4 Connect	ests tion using	4-Octet AS	capapbiili	ty					
MUST	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 10.3:	FreeBSD 10.3:	FreeBSD 10.3:	FreeBSD 10.3:	FreeBSD 10.3:	FreeBSD 10.3:	FreeBSD 10.3:
	10.3: pass	10.3: pass	10.3: pass	10.3: pass	untested	untested	untested	untested	untested	untested	untested
	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu
	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass
	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:
	untested	untested	untested	untested	12.0: pass	12.0: pass	12.0: pass	12.0: pass	untested	untested	untested
	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD	FreeBSD
	untested	untested	untested	untested	untested	untested	untested	untested	untested	12.2: pass	12.2: pass
ANVL-	RFC4893 Sect	ion 3 Page 2 "Pr	otocol Extension	ıs"		-		-			
BGPPLUS-AS4- 2.1 MUST	peer the 4 the 4-octe	lity that : l-octet Auto et Autonomo	is used by onomous Sys us System n apability O	tem number umber of th	capability ne speaker :	, also carr	ies				
	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 10.3:	FreeBSD 10.3:	FreeBSD 10.3:	FreeBSD 10.3:	FreeBSD 10.3:	FreeBSD 10.3:	FreeBSD 10.3:
	10.3: pass	10.3: pass	10.3: pass	10.3: pass	untested	untested	untested	untested	untested	untested	untested
	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu
	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass
	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:
	untested	untested	untested	untested	12.0: pass	12.0: pass	12.0: pass	12.0: pass	untested	untested	untested
	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD	FreeBSD
	untested	untested	untested	untested	untested	untested	untested	untested	untested	12.2: pass	12.2: pass





	Release 2.0.2	Release 3.0.3	Release 4.0	Release 5.0.1	Release 6.0.3	Release 7.0.1	Release 7.1	Release 7.3	Release 7.5	Release 8.0	Release 8.2.2			
ANVL-	RFC4893 Section 3 Page 2 "Protocol Extensions" Protocol Extensions The Capability Length field of the Capability is set to 4. FreeBSD FreeBSD FreeBSD FreeBSD TreeBSD TreeBSD 10.3: untested TreeBSD 10.3: unte													
BGPPLUS-AS4- 2.2			gth field o	f the Capab	oility is se	et to 4.								
MUST											FreeBSD 10.3: untested			
	0.000.000	0.00	0.000.00	0.000.00			0.00.000	0.000	0.000.00	0.000.000	Ubuntu 16.04: pass			
											FreeBSD 12.0: untested			
											FreeBSD 12.2: pass			
ANVL-	RFC4893 Section 3 Page 2 "Protocol Extensions"													
BGPPLUS-AS4- 2.3 MUST	NEW BGP sp 4-octet Au attribute,	eakers carr tonomous Sy except tha	ystems numb at each AS	ers by usin number in t	ng the exist this attribu	ing AS_PAT	H			FreeBSD 10.3: untested Ubuntu 16.04: pass FreeBSD 12.0: untested FreeBSD 12.2: pass FreeBSD 10.3: untested Ubuntu 16.04: pass FreeBSD 12.0:				
											FreeBSD 10.3: untested			
	0.000.000	0.00		0.000.00			0.000.000	0.000	0.000.00	0.00.000	Ubuntu 16.04: pass			
					FreeBSD 12.0: pass	FreeBSD 12.0: pass	FreeBSD 12.0: pass	FreeBSD 12.0: pass			FreeBSD 12.0: untested			
	FreeBSD 12.2: untested	FreeBSD 12.2: untested	FreeBSD 12.2: untested	FreeBSD 12.2: untested	FreeBSD 12.2: untested	FreeBSD 12.2: untested	FreeBSD 12.2: untested	FreeBSD 12.2: untested	FreeBSD 12.2: untested		FreeBSD 12.2: pass			





	Release	Release	Release	Release	Release	Release	Release	Release	Release	Release	Release				
	2.0.2	3.0.3	4.0	5.0.1	6.0.3	7.0.1	7.1	7.3	7.5	8.0	8.2.2				
ANVL-	RFC4893 Sect	ion 3 Page 2 "Pr	otocol Extension	ıs"											
BGPPLUS-AS4- 2.4 MUST	use the sa	extensions opplies to to the attribut las a 4-oct	te, except	that the AS											
	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 10.3:										
	10.3: pass	10.3: pass	10.3: pass	10.3: pass	untested										
	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu				
	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass				
	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:				
	untested	untested	untested	untested	12.0: pass	12.0: pass	12.0: pass	12.0: pass	untested	untested	untested				
	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD	FreeBSD				
	untested	untested	untested	untested	untested	untested	untested	untested	untested	12.2: pass	12.2: pass				
ANVL- BGPPLUS-AS4-		RFC4893 Section 3 Page 2 "Protocol Extensions" Note: Here we check for the flags only													
2.5 MUST	Protocol Extensions To preserve AS path information with 4-octet AS numbers across OLD BGP speakers, this document defines a new AS path attribute, called AS4_PATH.This is an optional transitive attribute that contains the AS path encoded with 4-octet AS numbers.														
	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 10.3:										
	10.3: pass	10.3: pass	10.3: pass	10.3: pass	untested										
	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu				
	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass				
	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:				
	untested	untested	untested	untested	12.0: pass	12.0: pass	12.0: pass	12.0: pass	untested	untested	untested				
	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD	FreeBSD				
	untested	untested	untested	untested	untested	untested	untested	untested	untested	12.2: pass	12.2: pass				





	Release	Release	Release	Release	Release	Release	Release	Release	Release	Release	Release			
	2.0.2	3.0.3	4.0	5.0.1	6.0.3	7.0.1	7.1	7.3	7.5	8.0	8.2.2			
ANVL- BGPPLUS-AS4-		ion 3 Page 2 "Pr check for the val		s"										
2.6 MUST	BGP speake AS4_PATH.T	Extensions re AS path fers, this do rhis is an o accoded with	ocument def optional tr	ines a new ansitive at	AS path at	tribute, ca	lled							
	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 10.3:									
	10.3: pass	10.3: pass	10.3: pass	10.3: pass	untested									
	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu			
	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass			
	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:			
	untested	untested	untested	untested	12.0: pass	12.0: pass	12.0: pass	12.0: pass	untested	untested	untested			
	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD	FreeBSD			
	untested	untested	untested	untested	untested	untested	untested	untested	untested	12.2: pass	12.2: pass			
ANVL- BGPPLUS-AS4-	RFC4893 Section 3 Page 3 "Protocol Extensions" Note: Here we check the attribute flags													
2.7 MUST	Protocol Extensions Similarly, this document defines a new aggregator attribute called AS4_AGGREGATOR, which is optional transitive.													
	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 10.3:									
	10.3: pass	10.3: pass	10.3: pass	10.3: pass	untested									
	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu			
	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: FAIL	16.04: FAIL	16.04: FAIL			
	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:			
	untested	untested	untested	untested	12.0: pass	12.0: pass	12.0: pass	12.0: pass	untested	untested	untested			
	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD	FreeBSD			
	untested	untested	untested	untested	untested	untested	untested	untested	untested	12.2: FAIL	12.2: FAIL			





	Release	Release	Release	Release	Release	Release	Release	Release	Release	Release	Release				
	2.0.2	3.0.3	4.0	5.0.1	6.0.3	7.0.1	7.1	7.3	7.5	8.0	8.2.2				
ANVL- BGPPLUS-AS4-		ion 3 Page 3 "Pr check the attribu		s"											
2.8 MUST		extensions this docur CATOR, which				tribute cal	led								
	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 10.3:	FreeBSD 10.3:	FreeBSD 10.3:	FreeBSD 10.3:	FreeBSD 10.3:	FreeBSD 10.3:	FreeBSD 10.3:				
	10.3: FAIL	10.3: FAIL	10.3: FAIL	10.3: FAIL	untested	untested	untested	untested	untested	untested	untested				
	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu				
	16.04: FAIL	16.04: FAIL	16.04: FAIL	16.04: FAIL	16.04: FAIL	16.04: FAIL	16.04: FAIL	16.04: FAIL	16.04: FAIL	16.04: FAIL	16.04: FAIL				
	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:				
	untested	untested	untested	untested	12.0: FAIL	12.0: FAIL	12.0: FAIL	12.0: FAIL	untested	untested	untested				
	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD	FreeBSD				
	untested	untested	untested	untested	untested	untested	untested	untested	untested	12.2: FAIL	12.2: FAIL				
ANVL- BGPPLUS-AS4-	RFC4893 Sect	RFC4893 Section 3 Page 3 "Protocol Extensions"													
2.9	in the res	this special this some Autonomous GP speaker,	specificati S System" f	on. This A	S number is OPEN mess	s also plac age origina	ed ted								
	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 10.3:	FreeBSD 10.3:	FreeBSD 10.3:	FreeBSD 10.3:	FreeBSD 10.3:	FreeBSD 10.3:	FreeBSD 10.3:				
	10.3: pass	10.3: pass	10.3: pass	10.3: pass	untested	untested	untested	untested	untested	untested	untested				
	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu				
	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass				
	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:				
	untested	untested	untested	untested	12.0: pass	12.0: pass	12.0: pass	12.0: pass	untested	untested	untested				
	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD	FreeBSD				
	untested	untested	untested	untested	untested	untested	untested	untested	untested	12.2: pass	12.2: pass				





	Release	Release	Release	Release	Release	Release	Release	Release	Release	Release	Release			
	2.0.2	3.0.3	4.0	5.0.1	6.0.3	7.0.1	7.1	7.3	7.5	8.0	8.2.2			
ANVL- BGPPLUS-AS4-	RFC4893 Sect Note: For AS4_	ion 4.1 Page 3 "I _PATH attribute	nteraction Betwe	een NEW BGP S	Speakers"									
3.1 SHOULD	The new at	on Between M tributes, A DATE message	AS4_PATH and	d AS4_AGGRE		LD NOT be c	arried							
	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 10.3:									
	10.3: pass	10.3: pass	10.3: pass	10.3: pass	untested									
	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu			
	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass			
	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:			
	untested	untested	untested	untested	12.0: pass	12.0: pass	12.0: pass	12.0: pass	untested	untested	untested			
	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD	FreeBSD			
	untested	untested	untested	untested	untested	untested	untested	untested	untested	12.2: pass	12.2: pass			
ANVL- BGPPLUS-AS4-	RFC4893 Section 3 Page 3 "Protocol Extensions" Note: For AS4_AGGREGATOR attribute													
3.2 SHOULD	The new at	on Between M tributes, A DATE message	AS4_PATH and	d AS4_AGGRE		LD NOT be c	arried							
	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 10.3:									
	10.3: pass	10.3: pass	10.3: pass	10.3: pass	untested									
	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu			
	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass			
	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:			
	untested	untested	untested	untested	12.0: pass	12.0: pass	12.0: pass	12.0: pass	untested	untested	untested			
	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD	FreeBSD			
	untested	untested	untested	untested	untested	untested	untested	untested	untested	12.2: pass	12.2: pass			





	Release	Release	Release	Release	Release	Release	Release	Release	Release	Release	Release
	2.0.2	3.0.3	4.0	5.0.1	6.0.3	7.0.1	7.1	7.3	7.5	8.0	8.2.2
ANVL- BGPPLUS-AS4- 3.3		it. 4.1, Page 3, In or AS4_PATH attr		en NEW BGP Sp	peakers						
SHOULD	A NEW BGP path attri	on Between I speaker tha butes in an nese path at I message.	at receives n UPDATE me	the AS4_PAssage from	a NEW BGP	speaker SHO					
	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 10.3:						
	10.3: pass	10.3: pass	10.3: pass	10.3: pass	untested						
	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu
	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass
	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:
	untested	untested	untested	untested	12.0: pass	12.0: pass	12.0: pass	12.0: pass	untested	untested	untested
	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD	FreeBSD
	untested	untested	untested	untested	untested	untested	untested	untested	untested	12.2: pass	12.2: pass
ANVL- BGPPLUS-AS4- 3.4		t. 4.1, Page 3, In or AS4_AGGREG		en NEW BGP Sp	peakers						
SHOULD	A NEW BGP path attri	on Between I speaker tha butes in an nese path at I message.	at receives n UPDATE me	the AS4_PAssage from	a NEW BGP	speaker SHO					
	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 10.3:						
	10.3: pass	10.3: pass	10.3: pass	10.3: pass	untested						
	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu
	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass
	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:
	untested	untested	untested	untested	12.0: pass	12.0: pass	12.0: pass	12.0: pass	untested	untested	untested
	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD	FreeBSD
	untested	untested	untested	untested	untested	untested	untested	untested	untested	12.2: pass	12.2: pass





	Release	Release	Release	Release	Release	Release	Release	Release	Release	Release	Release				
	2.0.2	3.0.3	4.0	5.0.1	6.0.3	7.0.1	7.1	7.3	7.5	8.0	8.2.2				
ANVL-	RFC4893 Sect	ion 4.2.2 Page 4	"Generating Up	dates"											
BGPPLUS-AS4- 4.1 MUST	When commu	Updates (1 nicating with the second s	ith an OLD	BGP speaker											
	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 10.3:	FreeBSD 10.3:	FreeBSD 10.3:	FreeBSD 10.3:	FreeBSD 10.3:	FreeBSD 10.3:	FreeBSD 10.3:				
	10.3: pass	10.3: pass	10.3: pass	10.3: pass	untested	untested	untested	untested	untested	untested	untested				
	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu				
	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass				
	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:				
	untested	untested	untested	untested	12.0: pass	12.0: pass	12.0: pass	12.0: pass	untested	untested	untested				
	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD	FreeBSD				
	untested	untested	untested	untested	untested	untested	untested	untested	untested	12.2: pass	12.2: pass				
ANVL- BGPPLUS-AS4-		RFC4893 Section 4.2.2 Page 4 "Generating Updates" Note: For AS4_PATH attribute													
MUST	The NEW sp AS4_PATH a for the ca 2-octet AS	Updates (1 eaker MUST ttribute (6 se where th numbers or S4_PATH att	also send encoded with ne entire A nly. In th	the AS path h 4-octet A S path info	S numbers) ormation is	, except composed o									
	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 10.3:	FreeBSD 10.3:	FreeBSD 10.3:	FreeBSD 10.3:	FreeBSD 10.3:	FreeBSD 10.3:	FreeBSD 10.3:				
	10.3: pass	10.3: pass	10.3: pass	10.3: pass	untested	untested	untested	untested	untested	untested	untested				
	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu				
	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass				
	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:				
	untested	untested	untested	untested	12.0: pass	12.0: pass	12.0: pass	12.0: pass	untested	untested	untested				
	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD	FreeBSD				
	untested	untested	untested	untested	untested	untested	untested	untested	untested	12.2: pass	12.2: pass				





	Release	Release	Release	Release	Release	Release	Release	Release	Release	Release	Release			
	2.0.2	3.0.3	4.0	5.0.1	6.0.3	7.0.1	7.1	7.3	7.5	8.0	8.2.2			
ANVL-	RFC4893 Sect	ion 4.2.2 Page 4	"Generating Up	dates"										
BGPPLUS-AS4- 4.3 MUST	In the AS_	JUpdates (1 PATH attrik numbers an	oute encode	d with 2-oc										
	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 10.3:									
	10.3: pass	10.3: pass	10.3: pass	10.3: pass	untested									
	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu			
	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass			
	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:			
	untested	untested	untested	untested	12.0: pass	12.0: pass	12.0: pass	12.0: pass	untested	untested	untested			
	FreeBSD 12.2: untested													
ANVL-	RFC4893 Sect	RFC4893 Section 4.2.2 Page 4 "Generating Updates"												
BGPPLUS-AS4- 4.4 MUST	Similarly, and if the then the s the attrib and placin of the AS4	Generating Updates (NEW-OLD BGP Speaker) Similarly, if the NEW speaker has to send the AGGREGATOR attribute, and if the aggregating Autonomous System"s AS number is truly 4-octets, then the speaker constructs the AS4_AGGREGATOR attributes by taking the attribute length and attribute value from the AGGREGATOR attribute and placing them into the attribute length and attribute value of the AS4_AGGREGATOR attribute, and sets the AS number field in the existing AGGREGATOR attribute to the reserved AS number, AS_TRANS.												
	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 10.3:									
	10.3: pass	10.3: pass	10.3: pass	10.3: pass	untested									
	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu			
	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass			
	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:			
	untested	untested	untested	untested	12.0: pass	12.0: pass	12.0: pass	12.0: pass	untested	untested	untested			
	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD	FreeBSD			
	untested	untested	untested	untested	untested	untested	untested	untested	untested	12.2: pass	12.2: pass			





	Release	Release	Release	Release	Release	Release	Release	Release	Release	Release	Release				
	2.0.2	3.0.3	4.0	5.0.1	6.0.3	7.0.1	7.1	7.3	7.5	8.0	8.2.2				
ANVL-	RFC4893 Sect	ion 4.2.2 Page 4	"Generating Up	dates"											
BGPPLUS-AS4- 4.5 SHOULD	Note that	Updates (1 if the AS r SHOULD NOT	number is 2		y, then the	e AS4_AGGRE	GATOR								
	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 10.3:										
	10.3: pass	10.3: pass	10.3: pass	10.3: pass	untested										
	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu				
	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass				
	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:				
	untested	untested	untested	untested	12.0: pass	12.0: pass	12.0: pass	12.0: pass	untested	untested	untested				
	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD	FreeBSD				
	untested	untested	untested	untested	untested	untested	untested	untested	untested	12.2: pass	12.2: pass				
ANVL-	RFC4893 Section 4.2.3 Page 4 "Processing Received Updates"														
BGPPLUS-AS4- 5.1 MUST	If the AS4 will be us therefore	Processing Received Updates (OLD-NEW BGP Speakers) If the AS4_PATH attribute is also received, both the attributes will be used to construct the exact AS path information, and therefore the information carried by both the attributes will be considered for AS path loop detection.													
	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 10.3:										
	10.3: FAIL	10.3: FAIL	10.3: FAIL	10.3: FAIL	untested										
	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu				
	16.04: FAIL	16.04: FAIL	16.04: FAIL	16.04: FAIL	16.04: FAIL	16.04: FAIL	16.04: FAIL	16.04: FAIL	16.04: FAIL	16.04: FAIL	16.04: FAIL				
	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:				
	untested	untested	untested	untested	12.0: FAIL	12.0: FAIL	12.0: FAIL	12.0: FAIL	untested	untested	untested				
	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD	FreeBSD				
	untested	untested	untested	untested	untested	untested	untested	untested	untested	12.2: FAIL	12.2: FAIL				





	Release	Release	Release	Release	Release	Release	Release	Release	Release	Release	Release
	2.0.2	3.0.3	4.0	5.0.1	6.0.3	7.0.1	7.1	7.3	7.5	8.0	8.2.2
ANVL- BGPPLUS-AS4-		tion 4.2.3 Page 5 r testing ignored			I						
5.2 MUST	When both AGGREGATOR - the AS4 be ignored	Received The attribute AGGREGATOR PATH attribute	ites are re is not AS_' R attribute	ceived, if TRANS, then and the AS	the AS numble: 4_PATH attr	ribute SHAL					
	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 10.3:	FreeBSD 10.3:	FreeBSD 10.3:	FreeBSD 10.3:	FreeBSD 10.3:	FreeBSD 10.3:	FreeBSD 10.3:
	10.3: pass	10.3: pass	10.3: pass	10.3: pass	untested	untested	untested	untested	untested	untested	untested
	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu
	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass
	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:
	untested	untested	untested	untested	12.0: pass	12.0: pass	12.0: pass	12.0: pass	untested	untested	untested
	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD	FreeBSD
	untested	untested	untested	untested	untested	untested	untested	untested	untested	12.2: pass	12.2: pass
ANVL-	RFC4893, Sec	tion 4.2.3 Page 5	5 "Processing Re	ceived Updates	1						
BGPPLUS-AS4- 5.3 MUST	- the AGG	Received UREGATOR att	ribute SHA			Formation					
	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 10.3:	FreeBSD 10.3:	FreeBSD 10.3:	FreeBSD 10.3:	FreeBSD 10.3:	FreeBSD 10.3:	FreeBSD 10.3:
	10.3: pass	10.3: pass	10.3: pass	10.3: pass	untested	untested	untested	untested	untested	untested	untested
	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu
	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass
	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:
	untested	untested	untested	untested	12.0: pass	12.0: pass	12.0: pass	12.0: pass	untested	untested	untested
	FreeBSD 12.2: untested unteste										





	Release	Release	Release	Release	Release	Release	Release	Release	Release	Release	Release		
	2.0.2	3.0.3	4.0	5.0.1	6.0.3	7.0.1	7.1	7.3	7.5	8.0	8.2.2		
ANVL-	RFC4893 Sect	ion 4.2.3 Page 5	"Processing Re	ceived Updates"									
BGPPLUS-AS4- 5.4 MUST	Otherwise, - the AGG - the AS4	Received T GREGATOR attacked LAGGREGATOR aggregating	ribute SHA Rattribute	LL be ignor	red,	e informati	on						
	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 10.3:								
	10.3: pass	10.3: pass	10.3: pass	10.3: pass	untested								
	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu		
	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass	16.04: pass		
	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:		
	untested	untested	untested	untested	12.0: pass	12.0: pass	12.0: pass	12.0: pass	untested	untested	untested		
	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD	FreeBSD		
	untested	untested	untested	untested	untested	untested	untested	untested	untested	12.2: pass	12.2: pass		
ANVL-	RFC4893 Section 4.2.3 Page 6 "Processing Received Updates"												
BGPPLUS-AS4- 5.5 MUST	Processing Received Updates (OLD-NEW BGP Speakers) If the number of AS numbers in the AS_PATH attribute is less than the number of AS numbers in the AS4_PATH attribute, then the AS4_PATH attribute SHALL be ignored, and the AS_PATH attribute SHALL be taken as the AS path information.												
	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 10.3:								
	10.3: FAIL	10.3: FAIL	10.3: FAIL	10.3: FAIL	untested								
	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu	Ubuntu		
	16.04: FAIL	16.04: FAIL	16.04: FAIL	16.04: FAIL	16.04: FAIL	16.04: FAIL	16.04: FAIL	16.04: FAIL	16.04: FAIL	16.04: FAIL	16.04: FAIL		
	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD	FreeBSD	FreeBSD	FreeBSD	FreeBSD 12.0:	FreeBSD 12.0:	FreeBSD 12.0:		
	untested	untested	untested	untested	12.0: FAIL	12.0: FAIL	12.0: FAIL	12.0: FAIL	untested	untested	untested		
	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD 12.2:	FreeBSD	FreeBSD		
	untested	untested	untested	untested	untested	untested	untested	untested	untested	12.2: FAIL	12.2: FAIL		





	Release 2.0.2	Release 3.0.3	Release 4.0	Release 5.0.1	Release 6.0.3	Release 7.0.1	Release 7.1	Release 7.3	Release 7.5	Release 8.0	Release 8.2.2
ANVL- BGPPLUS-AS4- 5.6 MUST	RFC4893 Section 4.2.3 Page 6 "Processing Received Updates"										
	Processing Received Updates (OLD-NEW BGP Speakers) If the number of AS numbers in the AS_PATH attribute is larger than or equal to the number of AS numbers in the AS4_PATH attribute, then the AS path information SHALL be constructed by taking as many AS numbers and path segments as necessary from the leading part of the AS_PATH attribute, and then prepending them to the AS4_PATH attribute so that the AS path information has an identical number of AS numbers as the AS_PATH attribute.										
	FreeBSD 10.3: pass	FreeBSD 10.3: pass	FreeBSD 10.3: pass	FreeBSD 10.3: pass	FreeBSD 10.3: untested						
	Ubuntu 16.04: pass	Ubuntu 16.04: pass	Ubuntu 16.04: pass	Ubuntu 16.04: pass	Ubuntu 16.04: pass	Ubuntu 16.04: pass	Ubuntu 16.04: pass	Ubuntu 16.04: pass	Ubuntu 16.04: pass	Ubuntu 16.04: pass	Ubuntu 16.04: pass
	FreeBSD 12.0: untested	FreeBSD 12.0: untested	FreeBSD 12.0: untested	FreeBSD 12.0: untested	FreeBSD 12.0: pass	FreeBSD 12.0: pass	FreeBSD 12.0: pass	FreeBSD 12.0: pass	FreeBSD 12.0: untested	FreeBSD 12.0: untested	FreeBSD 12.0: untested
	FreeBSD 12.2: untested	FreeBSD 12.2: untested	FreeBSD 12.2: untested	FreeBSD 12.2: untested	FreeBSD 12.2: untested	FreeBSD 12.2: untested	FreeBSD 12.2: untested	FreeBSD 12.2: untested	FreeBSD 12.2: untested	FreeBSD 12.2: pass	FreeBSD 12.2: pass





	Release 2.0.2	Release 3.0.3	Release 4.0	Release 5.0.1	Release 6.0.3	Release 7.0.1	Release 7.1	Release 7.3	Release 7.5	Release 8.0	Release 8.2.2
ANVL- BGPPLUS-AS4- 6.1 MUST	draft-ietf-idr-error-handling-01.txt Section 5.1 Page 6 " AGGREGATOR"										
	Revised Update Message Error Handling According to New Draft The AGGREGATOR attribute SHALL be considered malformed if any of the following applies: Its length is not 6 (when the "4-octet AS number capability" is not advertised to, or not received from the peer [RFC4893]). Its length is not 8 (when the "4-octet AS number capability" is both advertised to, and received from the peer). An UPDATE message with a malformed AGGREGATOR attribute SHALL be handled using the approach of "attribute discard". NOTE: This test checks for second condition(Its length is not 8)										
	FreeBSD 10.3: pass	FreeBSD 10.3: pass	FreeBSD 10.3: pass	FreeBSD 10.3: pass	FreeBSD 10.3: untested						
	Ubuntu 16.04: pass	Ubuntu 16.04: pass	Ubuntu 16.04: pass	Ubuntu 16.04: pass	Ubuntu 16.04: pass	Ubuntu 16.04: pass	Ubuntu 16.04: pass	Ubuntu 16.04: pass	Ubuntu 16.04: pass	Ubuntu 16.04: pass	Ubuntu 16.04: pass
	FreeBSD 12.0: untested	FreeBSD 12.0: untested	FreeBSD 12.0: untested	FreeBSD 12.0: untested	FreeBSD 12.0: pass	FreeBSD 12.0: pass	FreeBSD 12.0: pass	FreeBSD 12.0: pass	FreeBSD 12.0: untested	FreeBSD 12.0: untested	FreeBSD 12.0: untested
	FreeBSD 12.2: untested	FreeBSD 12.2: untested	FreeBSD 12.2: untested	FreeBSD 12.2: untested	FreeBSD 12.2: untested	FreeBSD 12.2: untested	FreeBSD 12.2: untested	FreeBSD 12.2: untested	FreeBSD 12.2: untested	FreeBSD 12.2: pass	FreeBSD 12.2: pass