	Release 8.3	Release 8.4	Release 8.5	Release x.x.x	Release x.x.x	Release x.x.x	Release x.x.x	Release x.x.x
Type	FRR	FRR	FRR	FRR	FRR			
Commit ID	gd19215c	99477bc	86a5e5a					
Commit Date	2022-08-07	2022-11-03	2023-03-14					
OSPFGR-2.1	RFC 3623 Section 1 Page 3 ' Overview'							
MUST	During the grace period, its neighbors continue to announce the restarting router in their LSAs as if it were fully adjacent (i.e., OSPF neighbor state Full)							
	Free BSD 10.3 untested	Free BSD 10.3 untested	Free BSD 10.3 untested					
	Ubuntu 18.04: pass	Ubuntu 18.04: pass	Ubuntu 18.04: pass					
	Free BSD 12.0 untested	Free BSD 12.0 untested	Free BSD 12.0 untested					
OSPFGR-3.4	RFC 3623 Section 2 Page 3 ' Operation of Restarting Router'							
MUST	the restarting router wants the other routers in the OSPF domain to calculate routes using the LSAs that it originated prior to its restart.							
	Free BSD 10.3 untested	Free BSD 10.3 untested	Free BSD 10.3 untested					
	Ubuntu 18.04: FAIL	Ubuntu 18.04: FAIL	Ubuntu 18.04: FAIL					
	Free BSD 12.0 untested	Free BSD 12.0 untested	Free BSD 12.0 untested					
OSPFGR-7.1	RFC 3623 Section 3 Page 7 ' Operation of Helper Neighbor'							
MUST	When helping over a virtual link, the helper must also continue to set bit V in its router-LSA for the virtual link's transit area.							
	Free BSD 10.3 untested	Free BSD 10.3 untested	Free BSD 10.3 untested					
	Ubuntu 18.04: inconclusive	Ubuntu 18.04: inconclusive	Ubuntu 18.04: inconclusive					
	Free BSD 12.0 untested	Free BSD 12.0 untested	Free BSD 12.0 untested					
OSPFGR-7.2	RFC 3623 Section 3 Page 7 ' Operation of Helper Neighbor'							
MUST	Also, if X was the Designated Router on network segment S when the helping relationship began, Y maintains X as the Designated Router until the helping relationship is terminated.							
	Free BSD 10.3 untested	Free BSD 10.3 untested	Free BSD 10.3 untested					
	Ubuntu 18.04: inconclusive	Ubuntu 18.04: inconclusive	Ubuntu 18.04: inconclusive					
	Free BSD 12.0 untested	Free BSD 12.0 untested	Free BSD 12.0 untested					

	Release 8.3	Release 8.4	Release 8.5	Release x.x.x	Release x.x.x	Release x.x.x	Release x.x.x	Release x.x.x
OSPFGR-7.3 **MUST**	NEGATIVE RFC 3623 Section 3 Page 7 'Operation of Helper Neighbor'							
	`It monitors the network for topology changes, and as long as there are none, continues to advertise its LSAs as if X had remained in continuous OSPF operation. Note: ANVL is changing topology and verifying helper will not advertise restarting router any more.`							
	Free BSD 10.3 untested	Free BSD 10.3 untested	Free BSD 10.3 untested					
	Ubuntu 18.04: FAIL	Ubuntu 18.04: FAIL	Ubuntu 18.04: FAIL					
	Free BSD 12.0 untested	Free BSD 12.0 untested	Free BSD 12.0 untested					
OSPFGR-8.1 **MUST**	RFC 3623 Section 3.1 Page 7 ' Entering Helper Mode'							
	`When a router Y receives a grace-LSA from router X, it enters helper mode for X on the associated network segment, as long as all the following checks pass: 1) Y currently has a full adjacency with X (neighbor state Full) over the associated network segment.`							
	Free BSD 10.3 untested	Free BSD 10.3 untested	Free BSD 10.3 untested					
	Ubuntu 18.04: pass	Ubuntu 18.04: pass	Ubuntu 18.04: pass					
	Free BSD 12.0 untested	Free BSD 12.0 untested	Free BSD 12.0 untested					
OSPFGR-8.2 **MUST**	RFC 3623 Section 3.1 Page 8 ' Entering Helper Mode'							
	`The grace period has not yet expired. This means that the LS age of the grace-LSA is less than the grace period specified in the body of the grace-LSA.`							
	Free BSD 10.3 untested	Free BSD 10.3 untested	Free BSD 10.3 untested					
	Ubuntu 18.04: pass	Ubuntu 18.04: pass	Ubuntu 18.04: pass					
	Free BSD 12.0 untested	Free BSD 12.0 untested	Free BSD 12.0 untested					
OSPFGR-8.3 **MUST**	RFC 3623 Section 3.1 Page 8 ' Entering Helper Mode'							
	`The grace period has not yet expired. This means that the LS age of the grace-LSA is less than the grace period specified in the body of the grace-LSA. [Note: Negative Case]`							
	Free BSD 10.3 untested	Free BSD 10.3 untested	Free BSD 10.3 untested					
	Ubuntu 18.04: inconclusive	Ubuntu 18.04: inconclusive	Ubuntu 18.04: inconclusive					
	Free BSD 12.0 untested	Free BSD 12.0 untested	Free BSD 12.0 untested					

	Release 8.3	Release 8.4	Release 8.5	Release x.x.x	Release x.x.x	Release x.x.x	Release x.x.x	Release x.x.x
OSPFGR-8.4 **MUST**	RFC 3623 Section 3.1 Page 8 ' Entering Helper Mode'							
	a) never act as helper Note: Here we do not configure DUT for Helper Mode							
	Free BSD 10.3 untested	Free BSD 10.3 untested	Free BSD 10.3 untested					
	Ubuntu 18.04: inconclusive	Ubuntu 18.04: inconclusive	Ubuntu 18.04: inconclusive					
	Free BSD 12.0 untested	Free BSD 12.0 untested	Free BSD 12.0 untested					
OSPFGR-8.5 **MUST**	RFC 3623 Section 3.1 Page 7 ' Entering Helper Mode'							
	On broadcast, NBMA and Point-to-MultiPoint segments, the neighbor relationship with X is identified by the IP interface address in the body of the grace-LSA. [Note: Negative testcase. Send Invalid ip address and check if the DUT does not go to helper mode]							
	Free BSD 10.3 untested	Free BSD 10.3 untested	Free BSD 10.3 untested					
	Ubuntu 18.04: inconclusive	Ubuntu 18.04: inconclusive	Ubuntu 18.04: inconclusive					
	Free BSD 12.0 untested	Free BSD 12.0 untested	Free BSD 12.0 untested					
OSPFGR-8.7 **MUST**	RFC 3623 Section 3.1 Page 8 ' Entering Helper Mode'							
	If Y was already helping X on the associated network segment, the new grace-LSA should be accepted and the grace period should be updated accordingly.							
	Free BSD 10.3 untested	Free BSD 10.3 untested	Free BSD 10.3 untested					
	Ubuntu 18.04: inconclusive	Ubuntu 18.04: inconclusive	Ubuntu 18.04: inconclusive					
	Free BSD 12.0 untested	Free BSD 12.0 untested	Free BSD 12.0 untested					
OSPFGR-8.8 **MUST**	RFC 3623 Section 3.1 Page 8 'Entering Helper Mode'							
	A single router is allowed to simultaneously serve as a helper for multiple restarting neighbors.							
	Free BSD 10.3 untested	Free BSD 10.3 untested	Free BSD 10.3 untested					
	Ubuntu 18.04: FAIL	Ubuntu 18.04: FAIL	Ubuntu 18.04: FAIL					
	Free BSD 12.0 untested	Free BSD 12.0 untested	Free BSD 12.0 untested					

	Release 8.3	Release 8.4	Release 8.5	Release x.x.x	Release x.x.x	Release x.x.x	Release x.x.x	Release x.x.x
OSPFGR-8.9	NEGATIVE RFC 3623 Section 3.1 Page 7 ' Entering Helper Mode'							
MUST	When a router Y receives a grace-LSA from router X, it enters helper mode for X on the associated network segment, as long as all the following checks pass: 1) Y currently has a full adjacency with X (neighbor state Full) over the associated network segment. Note: This case tests that DUT will not accept grace lsa from a neighbor whose adj state is init							
	Free BSD 10.3 untested	Free BSD 10.3 untested	Free BSD 10.3 untested					
	Ubuntu 18.04: pass	Ubuntu 18.04: pass	Ubuntu 18.04: pass					
	Free BSD 12.0 untested	Free BSD 12.0 untested	Free BSD 12.0 untested					
OSPFGR-8.10	NEGATIVE RFC 3623 Section 3.1 Page 7 ' Entering Helper Mode'							
MUST	When a router Y receives a grace-LSA from router X, it enters helper mode for X on the associated network segment, as long as all the following checks pass: 1) Y currently has a full adjacency with X (neighbor state Full) over the associated network segment. Note: This case tests that DUT will not accept grace lsa from a neighbor whose adj state is exstart							
	Free BSD 10.3 untested	Free BSD 10.3 untested	Free BSD 10.3 untested					
	Ubuntu 18.04: pass	Ubuntu 18.04: pass	Ubuntu 18.04: pass					
	Free BSD 12.0 untested	Free BSD 12.0 untested	Free BSD 12.0 untested					
OSPFGR-8.11	NEGATIVE RFC 3623 Section 3.1 Page 7 ' Entering Helper Mode'							
MUST	When a router Y receives a grace-LSA from router X, it enters helper mode for X on the associated network segment, as long as all the following checks pass: 1) Y currently has a full adjacency with X (neighbor state Full) over the associated network segment. Note: This case tests that DUT will not accept grace lsa from a neighbor whose adj state is exchange							
	Free BSD 10.3 untested	Free BSD 10.3 untested	Free BSD 10.3 untested					
	Ubuntu 18.04: pass	Ubuntu 18.04: pass	Ubuntu 18.04: pass					
	Free BSD 12.0 untested	Free BSD 12.0 untested	Free BSD 12.0 untested					

	Release 8.3	Release 8.4	Release 8.5	Release x.x.x	Release x.x.x	Release x.x.x	Release x.x.x	Release x.x.x
OSPFGR-9.1 **MUST**	RFC 3623 Section 3.2 Page 8 ' Exiting Helper Mode' RFC 3623 Section 3.2 Page 9 ' Exiting Helper Mode'							
	`Router Y ceases to perform the helper function for its neighbor Router X on a given segment when one of the following events occurs: 1) The grace-LSA originated by X on the segment is flushed. This indicates the successful termination of graceful restart.`							
	Free BSD 10.3 untested	Free BSD 10.3 untested	Free BSD 10.3 untested					
	Ubuntu 18.04: pass	Ubuntu 18.04: pass	Ubuntu 18.04: pass					
	Free BSD 12.0 untested	Free BSD 12.0 untested	Free BSD 12.0 untested					
OSPFGR-9.2 **MUST**	RFC 3623 Section 3.2 Page 8 ' Exiting Helper Mode'							
	`The grace-LSA's grace period expires.`							
	Free BSD 10.3 untested	Free BSD 10.3 untested	Free BSD 10.3 untested					
	Ubuntu 18.04: pass	Ubuntu 18.04: pass	Ubuntu 18.04: pass					
	Free BSD 12.0 untested	Free BSD 12.0 untested	Free BSD 12.0 untested					
OSPFGR-9.3 **MUST**	RFC 3623 Section 3.2 Page 8 ' Exiting Helper Mode'							
	`A change in link-state database contents indicates a network topology change, which forces termination of a graceful restart. Specifically, if router Y installs a new LSA in its database with LS types 1-5,7 and having the following two properties, it should cease helping X. The two properties of the LSA are: a) the contents of the LSA have changed; this includes LSAs with no previous link-state database instance and the flushing of LSAs from the database, but excludes periodic LSA refreshes`							
	Free BSD 10.3 untested	Free BSD 10.3 untested	Free BSD 10.3 untested					
	Ubuntu 18.04: pass	Ubuntu 18.04: pass	Ubuntu 18.04: pass					
	Free BSD 12.0 untested	Free BSD 12.0 untested	Free BSD 12.0 untested					
OSPFGR-9.4 **MUST**	RFC 3623 Section 3.2 Page 9 ' Exiting Helper Mode'							
	`b) Y reoriginates its router-LSA for the segment's OSPF area,`							
	Free BSD 10.3 untested	Free BSD 10.3 untested	Free BSD 10.3 untested					
	Ubuntu 18.04: pass	Ubuntu 18.04: pass	Ubuntu 18.04: pass					
	Free BSD 12.0 untested	Free BSD 12.0 untested	Free BSD 12.0 untested					

	Release 8.3	Release 8.4	Release 8.5	Release x.x.x	Release x.x.x	Release x.x.x	Release x.x.x	Release x.x.x
OSPFGR-9.5 **MUST**	RFC 3623 Section 3.2 Page 9 ' Exiting Helper Mode'							
	`d) if the segment was a virtual link, Y reoriginates its router-LSA for the virtual link's transit area.`							
	Free BSD 10.3 untested	Free BSD 10.3 untested	Free BSD 10.3 untested					
	Ubuntu 18.04: inconclusive	Ubuntu 18.04: inconclusive	Ubuntu 18.04: inconclusive					
	Free BSD 12.0 untested	Free BSD 12.0 untested	Free BSD 12.0 untested					
OSPFGR-10.9 **MUST**	RFC 3623 Section A Page 14 'Grace-LSA Format'							
	`Unrecognized types are ignored.`							
	Free BSD 10.3 untested	Free BSD 10.3 untested	Free BSD 10.3 untested					
	Ubuntu 18.04: pass	Ubuntu 18.04: pass	Ubuntu 18.04: pass					
	Free BSD 12.0 untested	Free BSD 12.0 untested	Free BSD 12.0 untested					
OSPFGR-10.10 **MUST**	RFC 3623 Section A Page 14 'Grace-LSA Format'							
	`Encodes the reason for the router restart as one of the following: 0 (unknown), 1 (software restart), 2 (software reload/upgrade) or 3 (switch to redundant control processor). [Note: Verifying reason unknown]`							
	Free BSD 10.3 untested	Free BSD 10.3 untested	Free BSD 10.3 untested					
	Ubuntu 18.04: pass	Ubuntu 18.04: pass	Ubuntu 18.04: pass					
	Free BSD 12.0 untested	Free BSD 12.0 untested	Free BSD 12.0 untested					
OSPFGR-10.11 **MUST**	RFC 3623 Section A Page 14 'Grace-LSA Format'							
	`Encodes the reason for the router restart as one of the following: 0 (unknown), 1 (software restart), 2 (software reload/upgrade) or 3 (switch to redundant control processor). [Note: Verifying reason software restart]`							
	Free BSD 10.3 untested	Free BSD 10.3 untested	Free BSD 10.3 untested					
	Ubuntu 18.04: pass	Ubuntu 18.04: pass	Ubuntu 18.04: pass					
	Free BSD 12.0 untested	Free BSD 12.0 untested	Free BSD 12.0 untested					

	Release 8.3	Release 8.4	Release 8.5	Release x.x.x	Release x.x.x	Release x.x.x	Release x.x.x	Release x.x.x
OSPFGR-10.12 **MUST**	RFC 3623 Section A Page 14 'Grace-LSA Format'							
	`Encodes the reason for the router restart as one of the following: 0 (unknown), 1 (software restart), 2 (software reload/upgrade) or 3 (switch to redundant control processor). [Note: Verifying reason software reload/upgrade]`							
	Free BSD 10.3 untested	Free BSD 10.3 untested	Free BSD 10.3 untested					
	Ubuntu 18.04: pass	Ubuntu 18.04: pass	Ubuntu 18.04: pass					
	Free BSD 12.0 untested	Free BSD 12.0 untested	Free BSD 12.0 untested					
OSPFGR-10.13 **MUST**	RFC 3623 Section A Page 14 'Grace-LSA Format'							
	`Encodes the reason for the router restart as one of the following: 0 (unknown), 1 (software restart), 2 (software reload/upgrade) or 3 (switch to redundant control processor). [Note: Verifying reason switch to redundant control processor]`							
	Free BSD 10.3 untested	Free BSD 10.3 untested	Free BSD 10.3 untested					
	Ubuntu 18.04: FAIL	Ubuntu 18.04: FAIL	Ubuntu 18.04: FAIL					
	Free BSD 12.0 untested	Free BSD 12.0 untested	Free BSD 12.0 untested					