

Dataset	# of Snapshots	$GE \neq \phi$	$IE \subseteq GE$	$AE = \phi \ \& \ IE \subseteq GE$	RR	FR
NZIC Only ($S1$)	168,482	166,591	166,470	166,470	98.81%	100.0%
Remaining ($S2$)	128,331	119,362	101,003	100,998	78.71%	99.99%
Total	296,813	285,953	267,473	267,468	90.11%	99.99%

Table 1: Performance of ZReplicator and DFixer among the snapshots with $IE \neq \emptyset$.

Instruction	1 st iteration	2 nd iteration	3 rd iteration	4 th iteration
Sign the zone	62,406 (41.67%)	13,845 (89.98%)	1,148 (62.19%)	7 (19.44%)
Remove the incorrect DS record	46,242 (30.87%)	1,319 (8.57%)	668 (36.19%)	29 (80.56%)
Upload the DS record	14,066 (9.39%)	117 (0.76%)	12 (0.65%)	-
Generate a KSK	13,148 (8.78%)	83 (0.54%)	-	-
Synchronize the DNS authoritative server	11,391 (7.61%)	-	-	-
Generate ZSK	1,491 (1.0%)	-	-	-
Reduce TTL of a specific record	947 (0.63%)	1 (0.01%)	-	-
Remove the revoked key	82 (0.05%)	22 (0.14%)	18 (0.98%)	-

Table 2: Instructions issued by DFixer during its iterative remediation process in the $S2$ subset (i.e., zones with more complex DNSSEC errors). This highlights how DFixer repeatedly removes incorrect DS records, re-signs zones, or updates keys until all misconfigurations are resolved.