A.9 Selected samples per family and their behavior dispatchers that used in evaluation.

SHA256	Family	Simplified Behavior dispachers			Year (first submission in Virustotal)
		Type	Function	Basic block chains [Start, End]	
001017c87a1a4c9aca8b55fe265babb5c3a97463bab33588a0a83925d8fc7d95	upatre	C2-related	0x401000	[0x401024, 0x4011cc]	2018
02186ad0ea9680bef3e6ea28d08c085332cba41c8f7392af7134cd553ca3d289	ibryte	C2-related	0x402032	[0x402252, 0x408734]	2018
044bb96c58ca05fa63a5292a909604604f499f6f0d334444e63d62b04e3a97dd	kolabc	C2-related	0x405338	[0x4053b6, 0x40570f]	2018
052ffac86ad7db839562e1c6b578bd732e363986e91ec67e67d2eb41213feb3c	gator	C2-related	0x409a20	[0x409b4d, 0x409c99]	2018
054027e32a23362e2b26d6d3081e4a4c3b400bca6ada3ea76e940099c6b14409	expiro	C2-related	0x10022bc	[0x1002310, 0x100255d]	2018
10cea7d2289c53e4d432762611906783afa9735e493471d4f9f3eb5a63ba0d0a	wapomi	C2-related	0x4095f4	[0x409638, 0x409e82]	2018
115c24b2e7ac5ebefcdf064c7813d988315cc4c489963962d3880474e9bcdbaf	autoit	C2-related	0x40a000	[0x40ac03, 0x40b6d1]	2018
121072e3e6bb51ce21911e17a2dc7555e5d71ff1de15262cfcf99bc1aac64c99	virut	C2-related	0x10050ce	[0x1005124, 0x100598e]	2018
14e02de1cd46b1b0198f73f07262a3847d0ce1e7871461202252b95b73bc5aba	sality	C2-related	0x30008714	[0x30008714, 0x30008957]	2018
1c4bb5d1896d1cbf495f15dfe14dee80decde7e01027ddd168801deffebdf3c0	chir	C2-related	0x1001f41	[0x1001f67, 0x10021eb]	2018
1cc1bd952ad29e44a1a249d9d9f9492048acfdc77fc220fb8296f28b47749a19	host	C2-related	0x40e800	[0x40e810, 0x40f1a6]	2018
1e2a3f5a1f727b2b6072adefb992c3da51dcf2cf85d1491713640a8d95ddb063	downloadersponsor	C2-related	0x46638d	[0x46640b, 0x466806]	2018
22cb952cce7ffdc74b99c1c961c725a31c9c8b1032136cf279448078f2762ccc	cosmu	C2-related	0x40eaa4	[0x40eb31, 0x40edfc]	2013
2356d6bac437beef7b854336594e0d262a7a91c02941b6be27d993fd6991b188	wabot	C2-related	0x405cdc	[0x405ce5, 0x406180]	2018
2df5bbe0e055e2af7d32e3b71ea80b70f844a917229a6b7f9668eca31c3d813e	zbot	C2-related	0x410650	[0x410761, 0x4107d5]	2012
2dfa173806d9a0da60bb4a2b0fa4ff0979543d80a188e7c81d4590ee26ac2a39	lamebot	C2-related	0x402661	[0x402707, 0x4028fc]	2015
2fc9b799fe335e563b9d838d163c6c7d045823c4366b0ff411969a5b265aa06d	hworld	C2-related	0x1004ae8	[0x1004b35, 0x1004bef]	2018
318f149602a8a8f9049d851f5d12f41e3b84c6ae48159cfd2a27b62f843e1398	speedingupmypc	C2-related	0x40e77c	[0x40e7a4, 0x40e865]	2018
3fa55852b0974ab0c4ef3db11963da466835787009d769c089e299cf9dcb322d	unruy	C2-related	0x40f45e	[0x40f4a7, 0x40fa39]	2018
40d3fe54bde382254fc2f562af2fc597279e4ebe9d717f0f828b9a414612d730	bladabindi	C2-related	0x404c50	[0x404e75, 0x404f5a]	2018
43933b0112dcf49c748246b2b4abe066ff067d962d590c4c5b82b03af4b0425e	shyape	C2-related	0x402900	[0x402923, 0x402a31]	2018
457b4058dab6f5a55666d52f3359e609c96a2c7a0f9f20e8b2163b8cbb51b990	mydoom	C2-related	0x804d32	[0x804d6a, 0x804efa]	2019
46eeb9690c04a406c0bbb1aa3dbd9e04a5a61bedce2ecc456ab3be3ed3182f2b	Hematite	C2-related	0x1004ae8	[0x1004b35, 0x1004bef]	2018
49cce631a6c2135f7a4ceefac9260bdd65ae903cdde25d2747fe52bb5b4b53e3	nitol	C2-related	0x401be0	[0x401cb2, 0x402160]	2018
4a8a92d9bd345ddee3134702db9e0fe573847c20ea0ba335c406b5cba46335df	badur	C2-related	0x4010a0	[0x4010a0, 0x401203]	2018
4c328f22bbbe056c489b5dee595d657180870bddbffef852d2bb672926f5cac4	offend	C2-related	0x40e010	[0x40e080, 0x40e510]	2018
4eabb1adc035f035e010c0d0d259c683e18193f509946652ed8aa7c5d92b6a92	dexter	C2-related	0x405ca0	[0x405cc1, 0x405e9c]	2013
4f0e0f8f17a74f12457e9353ee87324feb503b1bc3e7a025b8d2bca918aff939	Qakbot	C2-related	0x4019f7	[0x40b711, 0x40c293]	2018
5ee455952368a1a80cb1724387636f74af92ab92e1334f997aabd7e7846006de	adonai	C2-related	0x48c1dc	[0x48c20a, 0x48deec]	2013
5fed3475b4498a1d130996cbe268273a15b46a1a3060c56cb8ecda4b3e80f97a	Ramnit	C2-related	0x413d20	[0x4146a4, 0x414b06]	2018
608cb84a2277d4b7222af0293a1b682142c913d63097331ecae73e2fce7ea155	Rodecap	C2-related	0x4130c0	[0x41330d, 0x41374b]	2018
6a340dbff8c4d6f557ea5882227379ac2ea7a080d1da4204ef3a3b24fa6af877	ursu	C2-related	0x4019f7	[0x401cc2, 0x401d70]	2018
6a677e19dd0adb0902be09094cb2e64a1e1e422b25b8d2d24adac95640dede1a	startsurf	C2-related	0x4914c0	[0x4914f3, 0x491cb7]	2018
6bb31105cd051824bdab997ba4af0aeac9aff8deebdd637e480f3b39e3905802	tinba	C2-related	0x403520	[0x4037ce, 0x40447a]	2018
6be9c723d766a4478a74f7d3ba722dfd37ac120e1267d3da3fa88ff841a936e0	crytex	C2-related	0x100133f	[0x1001362, 0x10013db]	2018
6e50e0137ef2e57fa16d2750a1eff8f0b8552a29f48bad8e41196e39c71f458c	zusy	C2-related	0x40ddfd	[0x40e407, 0x40e9aa]	2018
72e5f89846cb2573b07a32e1c106dfbdbd56cd1a593836577f062401bcfac9fc	scar	C2-related	0x402900	[0x402940, 0x402a6f]	2018
8bb8feb3d5fb92c7584f1ccb94459307376dae239ce0beb459427efae0db905e	tedroo	C2-related	0x405b30	[0x405c26, 0x406319]	2019
8c0736746c5c70cafd2510318ec8d1a34192ef877128dbd9d4ba6db0e3c80d46	ircbot	C2-related	0x407a90	[0x407d61, 0x402377]	2018
8c86f78dc42fe98cf2aa0e412515e35ed4178f2d8fc066d2e7344dd91406675f	gandcrypt	C2-related	0x4011f8	[0x401231, 0x4014cb]	2018
9603098860e28858233ad7badfb3c76773f68a734bd12ceee11b7bb9e2f3b7be	vtflooder	C2-related	0x4010a0	[0x4010dc, 0x401203]	2018
a0a0c779dadcdd3328585316aff9b838f64b7afa070f4a63fe85bca747cb1d88	nanocore	C2-related	0x41a7bb	[0x41a854, 0x41b384]	2018
aebeb5363ad2aea39960fa2422241204a557259fcad8df60ee46eb902f53061e	alicia	C2-related	0x4743a8	[0x474401, 0x4746a6]	2013
b11c5fa939db2157c36c0a3a92966388dc81573a236da224753b8613959c7dcc	pykspa	C2-related	0x40fa36	[0x40fa63, 0x40fd1a]	2018
b5610d256505e8f590318cc891ca6277452f421b9d4b5a4551508ebddeef3d95	agen	C2-related	0x40164f	[0x402965, 0x4037e6]	2018
be40534b3738098b0ad386389c93ac9d3a7f89c592faa194a6a802d7f1b28880	zegost	C2-related	0x41eff0	[0x41f0cb, 0x41f248]	2018
c0c6be94ec07488ef2bd69894ba6c4955fbf5979599c47a1a68a76d719e3eac0	rbot	C2-related	0x40c580	[0x40c6e5, 0x40ca7b]	2018
c168184d91abc235db97c95163fabd64b8273069e99571fbc3fc0a6f2726f7df	kbot	C2-related	0x15112a00	[0x15112a00, 0x15112d09]	2019
c2470aa1143e956fe2d358a76f1c1bd2159bf9c98741a8b2b2e94516cdd852bb	agobot	C2-related	0x40138e	[0x401437, 0x4028f2]	2012
f689947fb17d061d8e49751efc84129a7ca0906a2adbd68e3909448f58201d7e	pioneer	C2-related	0x40138e	[0x45a4ae, 0x45a6e2]	2018