Abbreviations
~M_4 = AES_CMAC(AES_CMAC(AES_CMAC(AES_CMAC(ZERO,concat(concat(concat(concat(PI,PCap),PS),p256(gen,exp_P_1)),gen)),p256(gen,exp_P_1)),prck),concat(rand_prov_2,auth_val_3))
~M_6 = AES_CCM(keys,AES_CMAC(AES_CMAC(AES_CMAC(ZERO,concat(concat(AES_CMAC(ZERO,concat(concat(concat(concat(PI,PCap),PS),p256(gen,exp_P_1)),gen)),rand_prov_2),rand_prov_2)),p256(gen,exp_P_1)),prsk),AES_CMAC(AES_CMAC(AES_CMAC(ZERO,concat(concat(AES_CMAC(ZERO,concat(concat(concat(concat(PI,PCap),PS),p256(gen,exp_P_1)),gen)),rand_prov_2),rand_prov_2)),p256(gen,exp_P_1)),prsn))

A trace has been found.

Honest Process

Attacker

{1}new exp_P_1

{2}new exp_D_1

Beginning of process invite_prov

Beginning of process invite_dev

Beginning of process pubkey_exchange_noob_prov

Beginning of process pubkey_exchange_noob_dev

Beginning of process auth_inputoob_prov

Beginning of process auth_inputoob_dev

Beginning of process send_data_prov

Beginning of process recv_data_dev

Beginning of process inputoob_user

~M = PI

a

{7}insert pi_table_prov(addr_dev,PI)

{8}insert pcap_table_prov(addr_dev,a)

a_1

~M_1 = PCap

{11}insert pi_table_dev(addr_prov,a_1)

{12}insert pcap_table_dev(addr_prov,PCap)

{21}get pcap_table_prov(addr_dev,a)

~M_2 = PS

~M_3 = p256(gen,exp_P_1)

gen

{18}insert pubkey_table_prov(addr_prov,p256(gen,exp_P_1))

{19}insert pubkey_table_prov(addr_dev,gen)

{20}insert dhkey_table_prov(addr_prov,p256(gen,exp_P_1))

{60}get pubkey_table_prov(addr_prov,p256(gen,exp_P_1))

{59}get pubkey_table_prov(addr_dev,gen)

{58}get dhkey_table_prov(addr_prov,p256(gen,exp_P_1))

{31}new rand_prov_2

{32}new auth_val_3

auth_val_3

~M_4

~M_4

{44}event send_prov(p256(gen,exp_P_1))

~M_5 = rand_prov_2

~M_5 = rand_prov_2

{49}event recv_prov(p256(gen,exp_P_1))

{54}insert key_table_prov(addr_dev,AES_CMAC(AES_CMAC(AES_CMAC(ZERO,concat(concat(AES_CMAC(ZERO,concat(concat(concat(concat(PI,PCap),PS),p256(gen,exp_P_1)),gen)),rand_prov_2),rand_prov_2)),p256(gen,exp_P_1)),prsk))

{57}insert nonce_table_prov(addr_dev,AES_CMAC(AES_CMAC(AES_CMAC(ZERO,concat(concat(AES_CMAC(ZERO,concat(concat(concat(concat(PI,PCap),PS),p256(gen,exp_P_1)),gen)),rand_prov_2),rand_prov_2)),p256(gen,exp_P_1)),prsn))

{92}get key_table_prov(addr_dev,AES_CMAC(AES_CMAC(AES_CMAC(ZERO,concat(concat(AES_CMAC(ZERO,concat(concat(concat(concat(PI,PCap),PS),p256(gen,exp_P_1)),gen)),rand_prov_2),rand_prov_2)),p256(gen,exp_P_1)),prsk))

{91}get nonce_table_prov(addr_dev,AES_CMAC(AES_CMAC(AES_CMAC(ZERO,concat(concat(AES_CMAC(ZERO,concat(concat(concat(concat(PI,PCap),PS),p256(gen,exp_P_1)),gen)),rand_prov_2),rand_prov_2)),p256(gen,exp_P_1)),prsn))

~M_6

The attacker tests whether sdec(~M_6,AES_CMAC(AES_CMAC(AES_CMAC(ZERO,concat(concat(AES_CMAC(ZERO,concat(concat(concat(concat(~M,~M_1),~M_2),~M_3),gen)),~M_5),~M_5)),~M_3),prsk),AES_CMAC(AES_CMAC(AES_CMAC(ZERO,concat(concat(AES_CMAC(ZERO,concat(concat(concat(concat(~M,~M_1),~M_2),~M_3),gen)),~M_5),~M_5)),~M_3),prsn)) = keys
is equal to
a_2.
This gives the attacker some information on the secret.