Abbreviations
~M_2 = fist32bit(HMAC_SHA256(HMAC_SHA256(AES_CMAC(AES_CMAC(ltk_3,SALT),lebr),concat(concat(btak,addr_A),addr_B)),concat(rand_m_2,rand_s_2)))
~M_3 = next32bit(HMAC_SHA256(HMAC_SHA256(AES_CMAC(AES_CMAC(ltk_3,SALT),lebr),concat(concat(btak,addr_A),addr_B)),concat(rand_m_2,rand_s_2)))
~M_4 = AES_CCM(BCreq,HMAC_SHA256(AES_CMAC(AES_CMAC(ltk_3,SALT),lebr),concat(concat(concat(btak,addr_A),addr_B),last64bit(HMAC_SHA256(HMAC_SHA256(AES_CMAC(AES_CMAC(ltk_3,SALT),lebr),concat(concat(btak,addr_A),addr_B)),concat(rand_m_2,rand_s_2))))),last64bit(HMAC_SHA256(HMAC_SHA256(AES_CMAC(AES_CMAC(ltk_3,SALT),lebr),concat(concat(btak,addr_A),addr_B)),concat(rand_m_2,rand_s_2))))

A trace has been found.

Honest Process

Attacker

Beginning of process BLE_secure_pairing
{2}new ltk_3
{3}insert le_key_c(addr_B,ltk_3)
{4}insert le_key_p(addr_A,ltk_3)
{9}insert bc_key_c(addr_B,AES_CMAC(AES_CMAC(ltk_3,SALT),lebr))
{14}insert bc_key_p(addr_A,AES_CMAC(AES_CMAC(ltk_3,SALT),lebr))

Beginning of process BC_stack_central

{38}get bc_key_c(addr_B,AES_CMAC(AES_CMAC(ltk_3,SALT),lebr))
{16}new rand_m_2

Beginning of process BC_stack_peripheral_compromised

{79}get bc_key_p(addr_A,AES_CMAC(AES_CMAC(ltk_3,SALT),lebr))
{54}new rand_s_2

Beginning of process BCapp_central

~M = rand_m_2

~M = rand_m_2

~M_1 = rand_s_2

~M_1 = rand_s_2

~M_2

~M_2

~M_3

~M_3

BCreq

~M_4

~M_4

~M_5 = BCreq

The attacker has the message ~M_5 = BCreq