

Abbreviations
$\sim X_1 = \text{PRF}(\text{PRF}(a_2, a, \sim M_8), \text{client finished label}, \text{hash}(a, \sim M_8, \sim M_3, \text{penc}(a_2, \text{getPk}(\sim M_3)))) = \text{PRF}(\text{PRF}(a_2, a, \text{serverRandom}_4), \text{client finished label}, \text{hash}(a, \text{serverRandom}_4, \text{cert}(\text{subjectServer}_1, \text{pk}(\text{skServer}_3), \text{skCA}_1), \text{penc}(a_2, \text{pk}(\text{skServer}_3))))$
$\sim M_{10} = \text{PRF}(\text{PRF}(a_2, a, \text{serverRandom}_4), \text{server finished label}, \text{hash}(((a, \text{serverRandom}_4, \text{cert}(\text{subjectServer}_1, \text{pk}(\text{skServer}_3), \text{skCA}_1), \text{penc}(a_2, \text{pk}(\text{skServer}_3))), \text{PRF}(\text{PRF}(a_2, a, \text{serverRandom}_4), \text{client finished label}, \text{hash}((a, \text{serverRandom}_4, \text{cert}(\text{subjectServer}_1, \text{pk}(\text{skServer}_3), \text{skCA}_1), \text{penc}(a_2, \text{pk}(\text{skServer}_3))))))))$
$\sim X_2 = (\text{getURL}(\sim M_7), \text{HMAC}(\text{getURL}(\sim M_7), \text{PRF}(\text{PRF}(a_2, a, \sim M_8), \sim M_8, a))) = (\text{constructURL}(\text{subjectServer}_1, \text{path}_1), \text{HMAC}(\text{constructURL}(\text{subjectServer}_1, \text{path}_1), \text{PRF}(\text{PRF}(a_2, a, \text{serverRandom}_4), \text{serverRandom}_4, a)))$
$\sim M_{11} = \text{sign}(\text{makeMUDfile}(\text{constructURL}(\text{subjectServer}_1, \text{path}_1), \text{aclList}_2), \text{skServer}_3)$
$\sim M_{12} = \text{cert}(\text{subjectServer}_1, \text{pk}(\text{skServer}_3), \text{skCA}_1)$
$\sim M_{13} = \text{HMAC}((\text{sign}(\text{makeMUDfile}(\text{constructURL}(\text{subjectServer}_1, \text{path}_1), \text{aclList}_2), \text{skServer}_3), \text{cert}(\text{subjectServer}_1, \text{pk}(\text{skServer}_3), \text{skCA}_1)), \text{PRF}(\text{PRF}(a_2, a, \text{serverRandom}_4), \text{serverRandom}_4, a))$

A trace has been found.

