

Abbreviations
$\sim M_8 = \text{certDevice}(\text{subjectServer\_1}, \text{constructURL}(\text{subjectServer\_1}, \text{path\_1}), \text{pk}(\text{skThingAttacker\_1}), \text{skRogueCA\_1})$
$\sim M_9 = \text{skThingAttacker\_1}$
$\sim X_1 = \text{PRF}(\text{PRF}(a\_2, a, \sim M_{10}), \text{client\_finished\_label}, \text{hash}((a, \sim M_{10}, \sim M_3, \text{penc}(a\_2, \text{getPkServer}(\sim M_3))))))$ $=$ $\text{PRF}(\text{PRF}(a\_2, a, \text{serverRandom\_4}), \text{client\_finished\_label}, \text{hash}((a, \text{serverRandom\_4}, \text{cert}(\text{subjectServer\_1}, \text{pk}(\text{skServer\_3}), \text{skCA\_1}), \text{penc}(a\_2, \text{pk}(\text{skServer\_3}))))))$
$\sim M_{12} = \text{PRF}(\text{PRF}(a\_2, a, \text{serverRandom\_4}), \text{server\_finished\_label}, \text{hash}(((a, \text{serverRandom\_4}, \text{cert}(\text{subjectServer\_1}, \text{pk}(\text{skServer\_3}), \text{skCA\_1}), \text{penc}(a\_2, \text{pk}(\text{skServer\_3}))), \text{PRF}(\text{PRF}(a\_2, a, \text{serverRandom\_4}), \text{client\_finished\_label}, \text{hash}((a, \text{serverRandom\_4}, \text{cert}(\text{subjectServer\_1}, \text{pk}(\text{skServer\_3}), \text{skCA\_1}), \text{penc}(a\_2, \text{pk}(\text{skServer\_3}))))))))))$
$\sim X_2 = (\text{getURL}(\sim M_8), \text{HMAC}(\text{getURL}(\sim M_8), \text{PRF}(\text{PRF}(a\_2, a, \sim M_{10}), \sim M_{10}, a)))$ $= (\text{constructURL}(\text{subjectServer\_1}, \text{path\_1}), \text{HMAC}(\text{constructURL}(\text{subjectServer\_1}, \text{path\_1}), \text{PRF}(\text{PRF}(a\_2, a, \text{serverRandom\_4}), \text{serverRandom\_4}, a)))$
$\sim M_{13} = \text{sign}(\text{makeMUDfile}(\text{constructURL}(\text{subjectServer\_1}, \text{path\_1}), \text{aclList\_2}), \text{skServer\_3})$
$\sim M_{14} = \text{cert}(\text{subjectServer\_1}, \text{pk}(\text{skServer\_3}), \text{skCA\_1})$
$\sim M_{15} = \text{HMAC}((\text{sign}(\text{makeMUDfile}(\text{constructURL}(\text{subjectServer\_1}, \text{path\_1}), \text{aclList\_2}), \text{skServer\_3}), \text{cert}(\text{subjectServer\_1}, \text{pk}(\text{skServer\_3}), \text{skCA\_1})), \text{PRF}(\text{PRF}(a\_2, a, \text{serverRandom\_4}), \text{serverRandom\_4}, a))$

A trace has been found.

