Community Link Contracts

Definitions

A **community link contract** is a link contract used to authorize a connection request ({$do} message) from an RA or connection invitations ($is${$do}) from an AA. A community link contract address is not derived algorithmically from a link contract template address. Rather, it is simply a well-known XDI address to all members of that community.

**XDI Community Authority (XCA):** the XDI authority for a community link contract.

Pattern

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\begin{align*}
&\langle\langle AA\rangle/\langle\langle XCA\rangle\rangle\langle\langle XCA\rangle\rangle\langle\langle C-ID\rangle\rangle\langle do\rangle \quad \# \text{ address} \\
&\# \text{ operational permissions} \\
&\langle\langle AA\rangle/\langle\langle XCA\rangle\rangle\langle\langle XCA\rangle\rangle\langle\langle C-ID\rangle\rangle\langle do\rangle/\langle do\rangle \quad \# \text{ allow connection requests} \\
&\langle\langle AA\rangle/\langle\langle XCA\rangle\rangle\langle\langle XCA\rangle\rangle\langle\langle C-ID\rangle\rangle\langle do\rangle/\langle is\rangle/\langle do\rangle \quad \# \text{ allow connection invitations} \\
&\langle\langle AA\rangle/\langle\langle XCA\rangle\rangle\langle\langle XCA\rangle\rangle\langle\langle C-ID\rangle\rangle\langle do\rangle/\langle is\rangle/\langle get\rangle \quad \# \text{ allow $get$ invitations} \\
&\# \text{ usage permissions} \\
&\langle\langle AA\rangle/\langle\langle XCA\rangle\rangle\langle\langle XCA\rangle\rangle\langle\langle C-ID\rangle\rangle\langle for\rangle\langle opt\rangle \quad \# \text{ opt-in to community} \\
&\# \text{ community-defined policies} \\
&\langle\langle AA\rangle/\langle\langle XCA\rangle\rangle\langle\langle XCA\rangle\rangle\langle\langle C-ID\rangle\rangle\langle do\rangle/\langle if\rangle \quad \# \text{ who is allowed...} \\
&\langle\langle AA\rangle/\langle\langle XCA\rangle\rangle\langle\langle XCA\rangle\rangle\langle\langle C-ID\rangle\rangle\langle do\rangle/\langle if\rangle\langle and\rangle/\langle true\rangle \#\langle member\rangle/\langle from\rangle \\
&\langle\langle AA\rangle/\langle\langle XCA\rangle\rangle\langle\langle XCA\rangle\rangle\langle\langle C-ID\rangle\rangle\langle do\rangle/\langle if\rangle\langle and\rangle/\langle true\rangle\langle get\rangle\langle sig\rangle\langle valid\rangle \#\langle true\rangle \\
&\# \text{ signature for community-defined policies} \\
&\langle\langle AA\rangle/\langle\langle XCA\rangle\rangle\langle\langle XCA\rangle\rangle\langle\langle C-ID\rangle\rangle\langle do\rangle/\langle if\rangle \quad \# \text{ local authority-defined policies can be added} \\
&\langle\langle AA\rangle/\langle\langle XCA\rangle\rangle\langle\langle XCA\rangle\rangle\langle\langle C-ID\rangle\rangle\langle do\rangle/\langle if\rangle \quad \# \text{ policy expression -->} \\

Notes:

1. What if there is no community LC in a new graph, how does this bootstrap? Because graphs are "default-deny", in their initial state I suggest that we modify the public LC to allow XCA’s to initiate connect requests. These requests would either have to contain a $opt (triggering interactive approval by the authority) or they could be automatically authorized by the authority creating a connection invite for the XCA(s) it would like to work with. Note that if a spam problem occurred with this kind of request, this part of the public LC could be further locked down, e.g. by whitelisting XCA’s of checking claims.

2. There could be a requester LC that would allow the community to subsequently modify community LCs. Q: Is it possible for the XCA to REQUIRE that requester LC, to be able to modify its own policies?

3. As an alternative to 2., the community LC could externalize (part of) the community LC’s policies to the community authority acting as a policy decision point (PDP).