

# **Configuring CGA using DHCPv6**

## **draft-jiang-dhc-cga-config-02**

# **Requirements for Addresses Registration**

## **draft-jiang-6man-addr-registration-req-01**

**IETF 80 DHC WG**

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# Configuring CGA using DHCPv6

## draft-jiang-dhc-cga-config-02

- **The requirements & motivation was supported by IETF 79 attendants**
- **The DHC option has been modified according to comments in IETF 79**
  - DHCPv6 CGA Sec Option and DHCPv6 Address Grant Option has been integrated into CGA Grant Option (v01->v02)
  - Only indicate the recommended CGA Sec when request CGA is refused
- **Suresh suggested generic address registration mechanism might be better**
  - Sheng: also like generic address registration, see draft-jiang-6man-addr-registration-req
  - Sheng: even if generic address registration mechanism exists, we need CGA-specific option, either a CGA Sec Option or a CGA Grant Option (DHCP server needs to indicate host recommended CGA Sec)

# Requirements for Addresses Registration

## draft-jiang-6man-addr-registration-req-01

- **Was presented in IETF 79 6man WG**
- **Internet ADs (Jari & Ralph) did not sure about the requirements**
  - ρ Jari: the requirements may not be necessary
  - ρ Ralph: the current DHC protocol can fulfill these requirements
- **6man WG made the choice**
  - ρ Question: if we need such mechanism, do we extend DHCPv6 or RA, or both, or a new protocol
  - ρ 6man WG: DHCPv6 is suitable

# Problems and Requirements

- **Host self-generated addresses notionally conflict with the network managed address architecture**
  - Addresses in IPv6 Stateless Address Auto-Configuration [RFC4862, RFC4941] scenario
  - Cryptographically Generated Addresses (CGA, [RFC3972])
- **Many operators of enterprise networks and similarly tightly administered networks have expressed the desire to hold on to network managed address model when moving to IPv6**
  - Networks may reject the access request from host-generated addr
  - Disable host-generated addresses, also SLAAC and CGA
- **Ideal scenario: if the self-generated IPv6 addresses are used, they may need to be registered in and granted by the networking management plate**

# Generic Address Registration Procedure

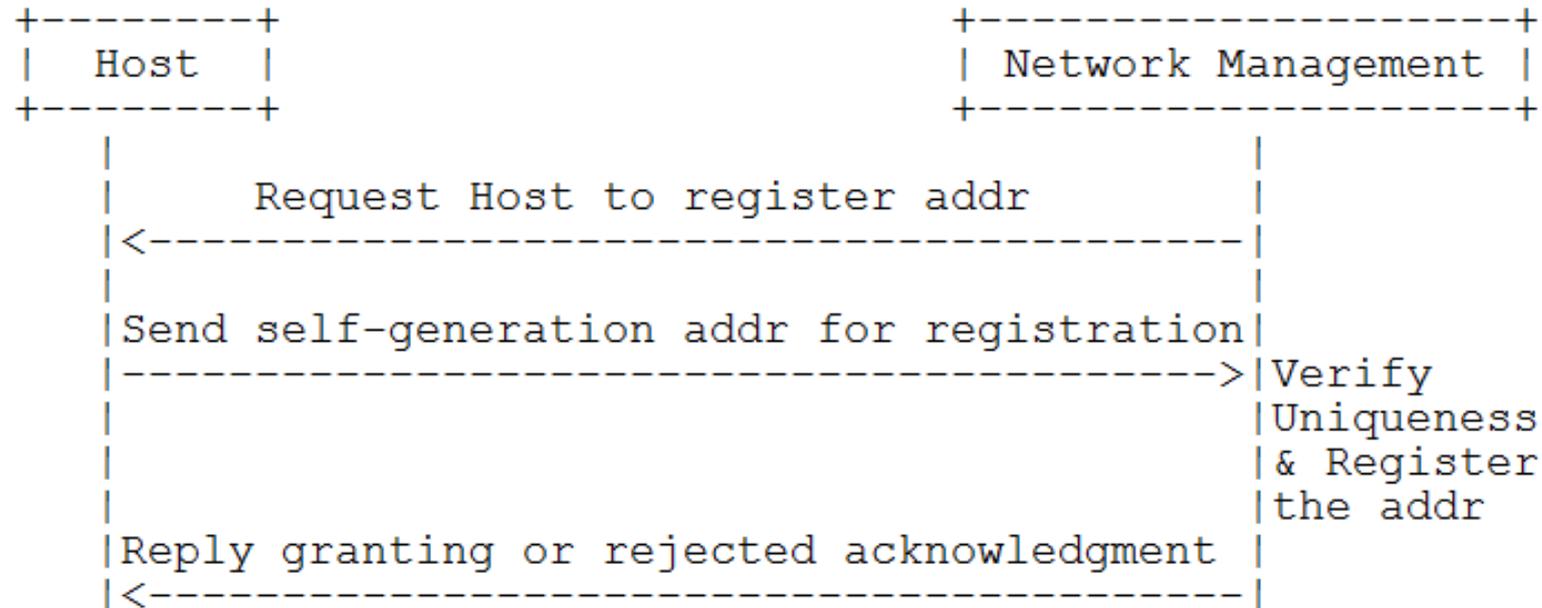


Figure 1: address registration procedure

**The server checks the acceptance of addresses, including verifying uniqueness, holds all registered addresses, and may interact with other network functions, such as DNS or ACL**

**May need to propagate the default/enforced address registration server**

**Step 1 needs to extend DHC (or RA)**

**Step 3 may be able to (to be discussed) reuse IA Address Option with IA\_NA or IA\_TA**

- **Questions, clarifications?**
- **Adopted as WG document?**

# Backup Slides

## Configuring Cryptographically Generated Addresses (CGA) using DHCPv6

draft-jiang-dhc-cga-config

IETF 79, DHC WG  
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# Requirements & Motivation

- **CGAs may be used in DHCPv6-managed networks**
  - Designed for SeND, also used in Shim6, Mobile IPv6, etc.
- **Network administrators may want to configure parameters used to generate CGAs and manage the use of CGAs**
  - CGAs are normally generated by hosts
  - Network management configures/enforces CGA relevant parameters to hosts
  - DHCPv6 server approves or rejects the usage of CGAs
- **New DHCPv6 options are needed to be able to fulfill the functions**

# CGA Configure Process Using DHCPv6

- **Configuration of the parameters required for the generation of CGA**
  - Parameters may be configured by network management
  - Prefix (RA or DHCP prefix assignment)
  - Sec value (new DHCPv6 option in this draft)
  - Public Key (not suitable for network transmission for security reasons)
  - Extension Fields (no use yet)
- **DHCPv6 server approves or rejects the usage of CGAs**
  - Hosts send Option Request option, which requests Address Grant Option (new DHCPv6 option, defined in this draft)
  - CGAs are carried in the IA Address Options
  - Servers reply a Address Grant Option
  - Upon reception of the ack, hosts use approved CGA or generate new one
  - Interaction procedure is described in details





- **Change Log**
  - ρ Removed CGA generation delegation

**Comments are welcomed!**

**Should the WG work on this?**

**Thank You!**