

DHCPv6使用前缀授权功能配置示例

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简介

本文描述如何使用前缀授权功能为了配置DHCPv6 (IPv6的动态主机配置协议)服务器和客户端。此功能可以用于管理链路、子网和站点地址更改。

在此配置示例中，名为*DHCPv6服务器*的路由器有启用的前缀授权功能并且作为一个委派的路由器。委派的路由器自动化分配前缀进程到请求的路由器(即DHCP客户端)。一旦服务器分配了前缀给客户端，连接对请求的路由器的局域网使用接收的前缀块的接口有一个IPv6地址。请求的路由器然后宣布在路由器通告消息的此地址。客户端路由器(即本地网络的路由器)能使用自动设定选项由DHCP客户端请求从通告的路由器通告消息的全局IP地址。

先决条件

要求

尝试进行此配置之前，请确保满足以下要求：

- [IPv6寻址和基本连通性](#)知识
- [实现IPv6的DHCP](#)知识

使用的组件

本文档不限于特定的软件和硬件版本。

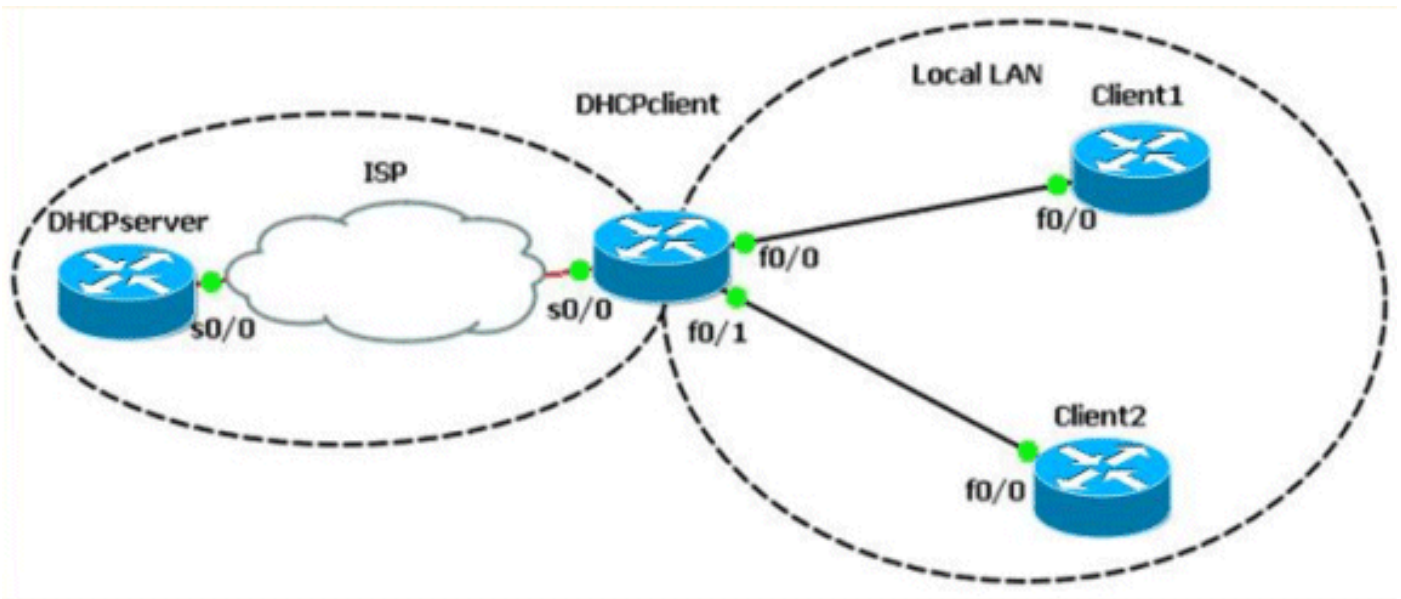
在本文的配置根据在Cisco IOS软件版本软件12.4 (15)T 13的Cisco 3700系列路由器。

配置

本部分提供有关如何配置本文档所述功能的信息。

网络图

本文档使用以下网络设置：



配置

本文档使用以下配置：

- [DHCP 服务器配置](#)
- [DHCP 客户端配置](#)
- [本地LAN客户端1和2配置](#)

这是链路到展示在配置在Cisco IOS路由器联机的DHCPv6涉及的步骤在[Cisco支持社区](#)的视频：

[DHCPv6的配置在Cisco IOS的](#)



```
DHCPSEVER#show running-config
```

```
version 12.4
!
hostname DHCPSEVER
!
ipv6 unicast-routing
ipv6 dhcp pool dhcpv6
!--- The DHCP pool is named "dhcpv6." ! prefix-delegation pool dhcpv6-pool1 lifetime 1800 600 !-
-- The prefix delegation pool name is "dhcpv6-pool1." ! dns-server 2001:DB8:3000:3000::42
domain-name example.com ! interface Serial0/0 no ip address ipv6 address 2010:AB8:0:1::1/64 ipv6
enable ipv6 dhcp server dhcpv6 clock rate 2000000 ! ipv6 local pool dhcpv6-pool1
2001:DB8:1200::/40 48 !--- The prefix pool named dhcpv6-pool1 has a prefix of length !--- /40
from which it will delegate (sub)prefixes of length /48. ! end
```

```
DHCPCLIENT#show running-config
```

```
version 12.4
!
hostname DHCPCLIENT
!
ipv6 unicast-routing
!
interface Serial0/0
no ip address
ipv6 address autoconfig default
!--- The autoconfig default adds a static ipv6 !--- default route pointing to upstream DHCP
server. ! ipv6 enable ipv6 dhcp client pd prefix-from-provider !--- The DHCP client prefix
delegation is !--- given the name prefix-from-provider. ! clock rate 2000000 ! interface
FastEthernet0/0 no ip address duplex auto speed auto ipv6 address prefix-from-provider
::1:0:0:0:1/64 !--- The first 48 bits are imported from the delegated !--- prefix
(2001:db8:1200) and the ::/64 is the client !--- identifier that gives the interface Fa0/1 the
!--- global IPv6 address 2001:DB8:1200:1::1/64. ! ipv6 enable ! interface FastEthernet0/1 no ip
address duplex auto speed auto ipv6 enable ipv6 address prefix-from-provider ::1/64 !---
```

Similarly, the global IPv6 address !--- for fa0/1 is 2001:DB8:1200::1. ! end

本地LAN配置

客户端 1

```
CLIENT1#show running-config
```

```
version 12.4
!
hostname CLIENT1
!
ipv6 unicast-routing
!
interface FastEthernet0/0
no ip address
duplex auto
speed auto
ipv6 address autoconfig
!--- The clients can run autoconfig to get an IPv6 !--- address
depending on the router advertisements !--- sent by the DHCP client
(requesting router). ! ipv6 enable ! end
```

客户端 2

```
CLIENT2#show running-config
```

```
version 12.4
!
hostname CLIENT2
!
ipv6 unicast-routing
!
interface FastEthernet0/0
no ip address
duplex auto
speed auto
ipv6 address autoconfig
ipv6 enable
!
end
```

验证

请使用本部分描述的命令来验证配置。

注意：为了保存空间，在此部分换行的若干输出到新的一行。

在DHCP服务器

在此部分的输出显示活动客户端数量是1并且显示其他配置参数信息，例如域名服务器地址和首选的生命时间信息。

显示ipv6 dhcp pool

```
DHCPv6 pool: dhcpv6
  Prefix pool: dhcpv6-pool1
  preferred lifetime 600, valid lifetime 1800
  DNS server: 2001:DB8:3000:3000::42
  Domain name: example.com
  Active clients: 1
```

[显示IPv6 dhcp捆绑](#)命令提供关于客户端的信息，包括他们的DUIDs、IAPDs、前缀和首选和有效寿命。

显示绑定的IPv6 dhcp

```
Client: FE80::C002:FFF:FEB4:0
  DUID: 00030001C2020FB40000
  Username : unassigned
  Interface : Serial0/0
  IA PD: IA ID 0x00060001, T1 300, T2 480
  Prefix: 2001:DB8:1200::/48
  preferred lifetime 600, valid lifetime 1800
  expires at Mar 02 2002 01:26 AM (1707 seconds)
```

在DHCP客户端

[显示IPv6 dhcp interface](#)命令显示接口S0/0在客户端模式配置并且显示DNS服务器地址的详细信息，并且该的域名从DHCP服务器接收。

[显示IPv6 dhcp interface](#)

```
Serial0/0 is in client mode
State is OPEN
Renew will be sent in 00:04:37
List of known servers:
Reachable via address: FE80::C003:FFF:FEB4:0
DUID: 00030001C2030FB40000
Preference: 0
Configuration parameters:
IA PD: IA ID 0x00060001, T1 300, T2 480
Prefix: 2001:DB8:1200::/48
preferred lifetime 600, valid lifetime 1800
expires at Mar 01 2002 10:59 AM (1777 seconds)
DNS server: 2001:DB8:3000:3000::42
Domain name: example.com
Information refresh time: 0
Prefix name: prefix-from-provider
Rapid-Commit: disabled
```

[显示IPv6 interface命令](#)在快速以太网接口Fa0/0和Fa0/1提供此输出：

显示IPv6 int fa0/0

```
FastEthernet0/0 is up, line protocol is up
IPv6 is enabled, link-local address
    is FE80::C002:FFF:FEB4:0
No Virtual link-local address(es):
Global unicast address(es):
    2001:DB8:1200:1::1, subnet is
        2001:DB8:1200:1::/64 [CAL/PRE]
    valid lifetime 1535 preferred lifetime 335
!--- Output omitted.
```

显示IPv6 int fa0/1

```
FastEthernet0/1 is up, line protocol is up
IPv6 is enabled, link-local address
    is FE80::C002:FFF:FEB4:1
No Virtual link-local address(es):
Global unicast address(es):
    2001:DB8:1200::1, subnet is
        2001:DB8:1200::/64 [CAL/PRE]
    valid lifetime 1712 preferred lifetime 512
!--- Output omitted.
```

[显示IPv6常规前缀命令](#)通过前缀授权验证所有接收的前缀(一般前缀)从DHCP服务器。

显示IPv6常规前缀

```
IPv6 Prefix prefix-from-provider, acquired via DHCP PD
    2001:DB8:1200::/48 Valid lifetime 1656, preferred lifetime 456
!--- 2001:DB8:1200::/48 is the general prefix received from server. FastEthernet0/1 (Address command)
FastEthernet0/0 (Address command)
```

在本地LAN客户端

[显示IPv6 interface命令](#)在客户端路由器Client1和Client2的快速以太网接口Fa0/0提供此输出：

显示IPv6 int fa0/0

客户端 1

```
FastEthernet0/0 is up, line protocol is up
IPv6 is enabled, link-local address
    is FE80::C000:FFF:FEB4:0
No Virtual link-local address(es):
Global unicast address(es):
    2001:DB8:1200:1:C000:FFF:FEB4:0, subnet is
        2001:DB8:1200:1::/64 [EUI/CAL/PRE]
    valid lifetime 1709 preferred lifetime 509
```

客户端 2

```
FastEthernet0/0 is up, line protocol is up
IPv6 is enabled, link-local address
    is FE80::C001:FFF:FEB4:0
No Virtual link-local address(es):
Global unicast address(es):
    2001:DB8:1200:0:C001:FFF:FEB4:0, subnet
    is 2001:DB8:1200::/64 [EUI/CAL/PRE]
    valid lifetime 1770 preferred lifetime 570
```

故障排除

目前没有针对此配置的故障排除信息。

相关信息

- [IPv6技术支持](#)
- [DHCPv6的配置在Cisco IOS的](#)
- [技术支持和文档 - Cisco Systems](#)