

# PCP Working Group

IETF 83 – Paris  
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Chairs:

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# Logistics

- Note takers; jabber scribe
- Meeting Materials (Slides, Agenda, etc.)
  - <http://tools.ietf.org/wg/pcp/agenda>
- XMPP
  - [pcp@jabber.ietf.org](mailto:pcp@jabber.ietf.org)
- Mailing List
  - [pcp@ietf.org](mailto:pcp@ietf.org)
  - <http://www.ietf.org/mailman/listinfo/pcp>

# Agenda (1/2)

DAY 2 (TUE 1300-1500)

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1300-1305 Chairs welcome (Chairs, 5)

1305-1315 PCP Base cont. (security considerations) (Margaret Wasserman, 10)  
draft-ietf-pcp-base-24

1315-1330 PCP Authentication Mechanism (Dacheng Zhang, 15)  
draft-wasserman-pcp-authentication-02

1330-1340 PCP Proxy (Dan Wing, 10)  
draft-bpw-pcp-proxy-01

1340-1350 UPnP-IGD Interworking Function (Mohamed Boucadair, 10)  
draft-ietf-pcp-upnp-igd-interworking-01

# Agenda 2/2

- 1350-1410 DS-lite Open Issues (Paul Selkirk, 20)  
draft-dupont-pcp-dslite-01
- 1410-1430 PCP Extensions (Mohamed Boucadair, 20)  
draft-boucadair-pcp-extensions-02  
draft-boucadair-pcp-rtp-rtcp-03
- 1430-1440 Using PCP To Coordinate Between the CGN (Tina Tsou, 10)  
and Home Gateway Via Port Allocation  
draft-tsou-pcp-natcoord-05
- 1440-1450 PCP Server Discovery with IPv4 traffic (Prashanth Patil, 10)  
offload for Proxy Mobile IPv6  
draft-rpcw-pcp-pmipv6-serv-discovery-00
- 1450-1500 Cases Study- PCP Deployment in Mobile Network (Gang Chen, 10)  
draft-chen-pcp-mobile-deployment-00
- POSTPONED Using PCP to Find an External Address (Dan Wing/Fred Baker, 10)  
in an NPTv6 Network  
Document: draft-baker-pcp-nptv6-search-00

# PCP Testing Suite (X.Deng, M. Boucadair)

- **Goal**
  - Validate the behavior of PCP Server and PCP Client implementations
  - More than 240 PCP test cases are defined for the PCP Server
- Open source available soon: <http://sourceforge.net/projects/pcptestingsuits/>
- **Features**
  - Generate a malformed PCP message: e.g., reserved bits are skipped
  - Generate an invalid PCP message: e.g., use a multicast address as internal IP address, use a broadcast address as internal IP address, etc.
  - Issue an unsupported PCP OpCode
  - Ask for non TCP/UDP mappings
  - Insert an unsupported PCP Option
  - Insert several instances of the same Option
  - Insert FILTER Option in PEER OpCode
  - Request for an unauthorized operation: modify a static mapping, reduce the lifetime of a SYN created mappings, etc.
  - Send a request using an unsupported version
  - Handle non solicited PCP responses
- **Testing Suite components**
  - PCP Request: Behaving as PCP Client
  - PCP Response: Emulate a PCP Server
  - XML-formatted file as test case input and output
  - A Wireshark dissector for PCP
  - A commercial tool is used for performance testing

# PCP Testing Suite

## (1) Behaving as PCP Client

### Port Control Protocol Testing Suite - Generating PCP Request

Common Request Header	
Version:	R: Opcode: Reserved:
Requested Lifetime:	
PCP Client's IP address:	
<input checked="" type="radio"/> MAP <input type="radio"/> PEER Opcode Request	
Protocol:	Reserved:
Internal Port:	External Port:
Suggested External IP address:	
Option(s)	
<input type="button" value="Add an Option"/> <input type="button" value="Delete"/> <input type="checkbox"/> Filter	Suggested external IPv4 or IPv6 address, having a mapping. If the PCP client does not know the external address, or does not have a preference, it MUST use the address-family-specific all-zeroes address
Generating a packet from a Hex value input?	
<input type="radio"/> Yes <input checked="" type="radio"/> No <input type="checkbox"/> Input validation check?	<input type="button" value="Browse..."/> <input type="button" value="Import"/> <input type="button" value="Export"/>
<input type="button" value="Send-packet"/> <input type="button" value="Reset Form"/>	
<a href="#">Get All Mappings from PCP server</a>	

## (2) Emulating as PCP Server

### Port Control Protocol Testing Suite - Generating PCP Response

Generating a packet from a Hex value input?	
<input checked="" type="radio"/> Yes <input type="radio"/> No <input type="checkbox"/> Input validation check?	<input type="button" value="Browse..."/> <input type="button" value="Import"/> <input type="button" value="Export"/>
<input type="button" value="Send-packet"/> <input type="button" value="Reset Form"/>	
<a href="#">Get All Mappings from PCP server</a>	

## (3) Import/export PCP test case

```
<?xml version="1.0" encoding="gb2312"?>
<version>1</version>
<r>0</r>
<opcode>1</opcode>
<reserved1></reserved1>
<reqlifetime>3600</reqlifetime>
<pcpcliipaddr>2001:ffff:ffff:300::1</pcpcliipaddr>
<proto>6</proto>
<reserved2></reserved2>
<in_port>5351</in_port>
<ex_port>5351</ex_port>
<sugextipaddr>192.168.2.1</sugextipaddr>
<rempeerport>10.0.0.1</rempeerport>
<reserved4></reserved4>
<rempeeripaddr>2.2.2.2</rempeeripaddr>
<opselect>1</opselect>
<opt>4</opt>
<optfil>2</optfil>
<optcode0>3</optcode0>
<resopt0></resopt0>
<optlen0>16</optlen0>
<resoptfil20></resoptfil20>
<prelenfil10>12</prelenfil10>
<rempeerportfil10>3333</rempeerportfil10>
<optdata0>::ffff:8.8.8.8</optdata0>
<optcode1>2</optcode1>
<resopt1></resopt1>
<optlen1>0</optlen1>
```

## (4) A Wireshark dissector for PCP

- Frame 1: 150 bytes on wire (1200 bits), 150 bytes captured (1200 bits)
- Ethernet II, Src: LinksysG\_00:a1:0c (00:06:25:00:a1:0c), Dst: Dell\_ac:a1:fe (b8:ac:6f:ac)
- Internet Protocol Version 6, Src: 2001:ffff:ffff:300::1 (2001:ffff:ffff:300::1), Dst: 2001:ffff:ffff:300::1 (2001:ffff:ffff:300::1)
- User Datagram Protocol, Src Port: 37146 (37146), Dst Port: pcp (5351)
- Port Control Protocol
  - Version: 1
  - R bit: Request (0)
  - Opcode: MAP (0x01)
  - Reserved: 0
  - Requested Lifetime: 3600 sec
  - PCP Client's IP Address: 2001:ffff:ffff:300::1 (2001:ffff:ffff:300::1)
- MAP Request
  - Prefer Failure Option
    - Option code: prefer failure (0x02)
    - Reserved: 0
    - Option Length: 0 bytes
    - Data: (NULL)
  - Third Party Option
    - Option code: third party (0x01)
    - Reserved: 0
    - Option Length: 16 bytes
    - Data: 00000000000000000000ffffc0a802ea
  - Description Option
    - Option code: description (0x40)
    - Reserved: 0
    - Option Length: 12 bytes
    - Data: 616464706370636c69656e74