# Using DNS SRV Feature on Yealink SIP-T3XG Phones

## 1.  Feature Introduction

The Yealink Phone DNS-SRV Feature is to ensure continuity of phone service for events where the call server needs to be taken offline for maintenance, the server fails, or the connection from the phone to the server fails.

Two types of redundancy are possible:

- Fail-over: In this mode, the full phone system functionality is preserved by having a second equivalent capability call server take over from the one that has gone down/off-line. This mode of operation should be done using DNS mechanisms or "IP Address Moving" from the primary to the back-up server.

- Fallback: In this mode, a second less featured call server (router or gateway device) with SIP capability takes over call control to provide basic calling capability, but without some of the richer features offered by the primary call server (for example, shared lines, presence, and Message Waiting Indicator). Yealink phones support configuration of multiple servers per SIP registration for this purpose.

In some cases, a combination of the two may be deployed.

With DNS-SRV feature, Yealink phones are able to perform the following redundancy scenarios:

- DNS SRV Lookup

  Take the DN onsip.com for example, before registration, phone will do NAPTR lookup for onsip.com, and get the result below:

|  | order | pref | flags | service | regexp | replacement |
|---|---|---|---|---|---|---|
| IN NAPTR | 50 | 50 | "s" | "SIPS+D2T" | "" | _sips._tcp.example.com |
| IN NAPTR | 90 | 50 | "s" | "SIP+D2T" | "" | _sip._tcp.example.com |
| IN NAPTR | 100 | 50 | "s" | "SIP+D2U" | "" | _sip._udp.example.com |

  Then phone will do SRV lookup according to the NAPTR lookup result, and get the SRV lookup result below:

|  | Priority | Weight | Port | Target |
|---|---|---|---|---|
| IN SRV | 0 | 1 | 5060 | server1.example.com |
| IN SRV | 0 | 2 | 5060 | server1.example.com |

  Finally, do the A record lookup according to the SRV lookup result and get two IP addresses which are associated with the DN onsip.com, also the IP addressed will ordered by the priority which returned from DNS server, for example first server is 69.57.179.234 and second sever is 69.57.179.235.

- REGISTER Failover/Failback
  If phone fail to register to the first server 69.57.179.234, it will try to register to second server 69.57.179.235 automatically.

- INVITE Failover/Failback
  If the INVITE message does not correct response from the first server 69.57.179.234, it will try the second server 69.57.179.235 automatically.

- BYE Failover
  If the BYE message does not correct response from the first server 69.57.179.234, it will try the second server 69.57.179.235 automatically.

## 2. Phone Configuration

Browse to Account→Basic page, give a DNS name to SIP server and select "DNS-SVR" for transport option.

# Sample introduction of how Yealink Phones use TCP as transport type after DNS-SRV

**1. Configure Yealink SIP Phone**

## 2. DNS-SRV Process

◆ Refer to session 2.1 when click "Configm" after setting, Yealink SIP Phone performs a NAPTR lookup, and gets the NAPTR records.

|  | order | pref | flags | service | regexp | replacement |
|---|---|---|---|---|---|---|
| IN NAPTR | 2 | 0 | "s" | "SIP+D2T" | "" | _sip._tcp.airties.com |
| IN NAPTR | 2 | 0 | "s" | "SIP+D2U" | "" | _sip._udp. airties.com |

```
17 193.944356        10.12.0.1          10.12.2.1         DNS      Standard query response NAPTR 2 0 s NAPTR 2 0 s
18 194.011848        10.12.0.1          10.12.2.1         DNS      Standard query SRV _sip._tcp.airties.com
19 194.013156        10.12.0.1          10.12.2.1         DNS      Standard query response SRV 1 0 5060 uc2.airties.com SRV 2 0 5060 uc1.airties.com
20 194.017134        10.12.2.1          10.12.0.1         DNS      Standard query A uc2.airties.com
21 194.017758        10.12.0.1          10.12.2.1         DNS      Standard query response A 91.220.65.27
22 194.026062        10.12.2.1          10.12.0.1         DNS      Standard query A uc1.airties.com
23 194.026618        10.12.0.1          10.12.2.1         DNS      Standard query response A 91.220.65.26
24 194.040169        10.12.2.1          10.12.0.1         DNS      Standard query SRV _sip._udp.airties.com
25 194.041494        10.12.0.1          10.12.2.1         DNS      Standard query response SRV 2 0 5060 uc1.airties.com SRV 1 0 5060 uc2.airties.com
26 194.192043        10.12.2.1          91.220.65.27      SIP      Request: REGISTER sip:airties.com
27 194.197000        91.220.65.27       10.12.2.1         SIP      Status: 401 Unauthorized    (0 bindings)
28 195.696335        10.12.2.1          91.220.65.27      SIP      Request: REGISTER sip:airties.com
29 195.701767        91.220.65.27       10.12.2.1         SIP      Status: 423 Registration Too Brief    (0 bindings)
30 195.845413        10.12.2.1          224.0.1.75        SIP      Request: SUBSCRIBE sip:MAC0015651a108b@224.0.1.75
31 195.901397        10.12.2.1          91.220.65.27      SIP      Request: REGISTER sip:airties.com
32 195.909072        91.220.65.27       10.12.2.1         SIP      Status: 200 OK    (1 bindings)
```

```
Answer RRs: 2
Authority RRs: 0
Additional RRs: 0
Queries
Answers
airties.com: type NAPTR, class IN, order 2, preference 0, flags s
    Name: airties.com
    Type: NAPTR (Naming authority pointer)
    Class: IN (0x0001)
    Time to live: 1 hour
    Data length: 38
    Order: 2
    Preference: 0
    Flags length: 1
    Flags: "s"
    Service length: 7
    Service: "SIP+D2T"
    Regex length: 0
    Regex: ""
    Replacement length: 23
    Replacement: _sip._tcp.airties.com
airties.com: type NAPTR, class IN, order 2, preference 0, flags s
    Name: airties.com
    Type: NAPTR (Naming authority pointer)
    Class: IN (0x0001)
    Time to live: 1 hour
    Data length: 38
    Order: 2
    Preference: 0
    Flags length: 1
    Flags: "s"
    Service length: 7
    Service: "SIP+D2U"
    Regex length: 0
    Regex: ""
    Replacement length: 23
    Replacement: _sip._udp.airties.com
```

◆ Then Yealink Phone performs a SRV lookup, and gets the SRV records, and gets the SRV records as follows:

NAPTR record : _sip._tcp.airties.com

|  | Priority | Weight | Port | Target |
|---|---|---|---|---|
| IN SRV | 1 | 0 | 5060 | uc2. airties.com |
| IN SRV | 2 | 0 | 5060 | Uc1. airties.com |

```
  16 193.942190      10.12.2.1          10.12.0.1         DNS    Standard query NAPTR airties.com
  17 193.944356      10.12.0.1          10.12.2.1         DNS    Standard query response NAPTR 2 0 s NAPTR 2 0 s
  18 194.011848      10.12.2.1          10.12.0.1         DNS    Standard query SRV _sip._tcp.airties.com
  19 194.013156      10.12.0.1          10.12.2.1         DNS    Standard query response SRV 1 0 5060 uc2.airties.com SRV 2 0 5060 uc1.airties.com
  20 194.017134      10.12.2.1          10.12.0.1         DNS    Standard query A uc2.airties.com
  21 194.017758      10.12.0.1          10.12.2.1         DNS    Standard query response A 91.220.65.27
  22 194.026062      10.12.2.1          10.12.0.1         DNS    Standard query A uc1.airties.com
  23 194.026618      10.12.0.1          10.12.2.1         DNS    Standard query response A 91.220.65.26
  24 194.040169      10.12.2.1          10.12.0.1         DNS    Standard query SRV _sip._udp.airties.com
  25 194.041494      10.12.0.1          10.12.2.1         DNS    Standard query response SRV 2 0 5060 uc1.airties.com SRV 1 0 5060 uc2.airties.com
  26 194.192043      10.12.2.1          91.220.65.27      SIP    Request: REGISTER sip:airties.com
  27 194.197000      91.220.65.27       10.12.2.1         SIP    Status: 401 Unauthorized    (0 bindings)
  28 195.696335      10.12.2.1          91.220.65.27      SIP    Request: REGISTER sip:airties.com
  29 195.701767      91.220.65.27       10.12.2.1         SIP    Status: 423 Registration Too Brief    (0 bindings)
  30 195.845413      10.12.2.1          224.0.1.75        SIP    Request: SUBSCRIBE sip:MAC0015651a108b@224.0.1.75
  31 195.901397      10.12.2.1          91.220.65.27      SIP    Request: REGISTER sip:airties.com
  32 195.909072      91.220.65.27       10.12.2.1         SIP    Status: 200 OK    (1 bindings)
  33 196.706830      10.12.2.1          91.220.65.27      SIP    Request: SUBSCRIBE sip:6903@airties.com
  34 196.711394      91.220.65.27       10.12.2.1         SIP    Status: 401 Unauthorized
  25 106 920012       10 12 2 1          01 220 65 27      STD    Request: SUBSCRIBE sip:6902@airties com
```

```
Frame 19 (151 bytes on wire, 151 bytes captured)
Ethernet II, Src: JuniperN_17:68:8a (00:21:59:17:68:8a), Dst: XiamenYe_1a:10:8b (00:15:65:1a:10:8b)
Internet Protocol, Src: 10.12.0.1 (10.12.0.1), Dst: 10.12.2.1 (10.12.2.1)
User Datagram Protocol, Src Port: domain (53), Dst Port: blackjack (1025)
Domain Name System (response)
   [Request In: 24]
   [Time: -0.027013000 seconds]
   Transaction ID: 0x0002
 + Flags: 0x8500 (Standard query response, No error)
   Questions: 1
   Answer RRs: 2
   Authority RRs: 0
   Additional RRs: 0
 + Queries
 - Answers
   ⊟ _sip._tcp.airties.com: type SRV, class IN, priority 1, weight 0, port 5060, target uc2.airties.com
       Name: _sip._tcp.airties.com
       Type: SRV (Service location)
       Class: IN (0x0001)
       Time to live: 1 hour
       Data length: 23
       Priority: 1
       Weight: 0
       Port: 5060
       Target: uc2.airties.com
   ⊟ _sip._tcp.airties.com: type SRV, class IN, priority 2, weight 0, port 5060, target uc1.airties.com
       Name: _sip._tcp.airties.com
       Type: SRV (Service location)
       Class: IN (0x0001)
       Time to live: 1 hour
       Data length: 23
       Priority: 2
       Weight: 0
       Port: 5060
       Target: uc1.airties.com
```
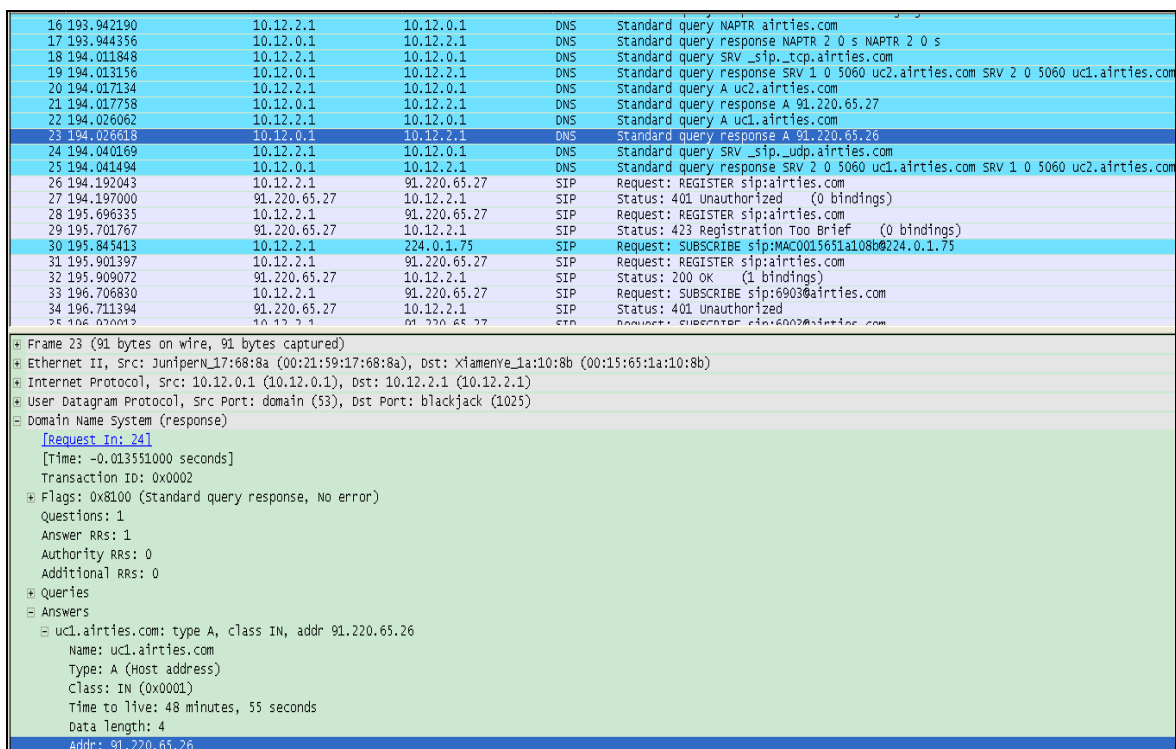
◆ After SRV lookup Yealink Phone performs A record lookup, and gets the IP Address of the sip server domain.

|  | Name | TTL | Addr |
|---|---|---|---|
| IN A | uc2. airties.com |  | 91.220.65.27 |
| IN A | Uc1. irties.com |  | 91.220.65.26 |

```
16 193.942190      10.12.2.1        10.12.0.1        DNS    Standard query NAPTR airties.com
17 193.944356      10.12.0.1        10.12.2.1        DNS    Standard query response NAPTR 2 0 s NAPTR 2 0 s
18 194.011848      10.12.2.1        10.12.0.1        DNS    Standard query SRV _sip._tcp.airties.com
19 194.013156      10.12.0.1        10.12.2.1        DNS    Standard query response SRV 1 0 5060 uc2.airties.com SRV 2 0 5060 uc1.airties.com
20 194.017134      10.12.2.1        10.12.0.1        DNS    Standard query A uc2.airties.com
21 194.017758      10.12.0.1        10.12.2.1        DNS    Standard query response A 91.220.65.27
22 194.026062      10.12.2.1        10.12.0.1        DNS    Standard query A uc1.airties.com
23 194.026618      10.12.0.1        10.12.2.1        DNS    Standard query response A 91.220.65.26
24 194.040169      10.12.2.1        10.12.0.1        DNS    Standard query SRV _sip._udp.airties.com
25 194.041494      10.12.0.1        10.12.2.1        DNS    Standard query response SRV 2 0 5060 uc1.airties.com SRV 1 0 5060 uc2.airties.com
26 194.192043      10.12.2.1        91.220.65.27     SIP    Request: REGISTER sip:airties.com
27 194.197000      91.220.65.27     10.12.2.1        SIP    Status: 401 Unauthorized    (0 bindings)
28 195.696335      10.12.2.1        91.220.65.27     SIP    Request: REGISTER sip:airties.com
29 195.701767      91.220.65.27     10.12.2.1        SIP    Status: 423 Registration Too Brief    (0 bindings)
30 195.845413      10.12.2.1        224.0.1.75       SIP    Request: SUBSCRIBE sip:MAC0015651a108b@224.0.1.75
31 195.901397      10.12.2.1        91.220.65.27     SIP    Request: REGISTER sip:airties.com
32 195.909072      91.220.65.27     10.12.2.1        SIP    Status: 200 OK    (1 bindings)
33 196.706830      10.12.2.1        91.220.65.27     SIP    Request: SUBSCRIBE sip:6903@airties.com
34 196.711394      91.220.65.27     10.12.2.1        SIP    Status: 401 Unauthorized
35 196.920012      10.12.2.1        91.220.65.27     SIP    Request: SUBSCRIBE sip:6002@airties.com

Frame 21 (91 bytes on wire, 91 bytes captured)
Ethernet II, Src: JuniperN_17:68:8a (00:21:59:17:68:8a), Dst: XiamenYe_1a:10:8b (00:15:65:1a:10:8b)
Internet Protocol, Src: 10.12.0.1 (10.12.0.1), Dst: 10.12.2.1 (10.12.2.1)
User Datagram Protocol, Src Port: domain (53), Dst Port: blackjack (1025)
Domain Name System (response)
 [Request In: 24]
 [Time: -0.022411000 seconds]
 Transaction ID: 0x0002
 Flags: 0x8100 (Standard query response, No error)
 Questions: 1
 Answer RRs: 1
 Authority RRs: 0
 Additional RRs: 0
 Queries
 Answers
  uc2.airties.com: type A, class IN, addr 91.220.65.27
    Name: uc2.airties.com
    Type: A (Host address)
    Class: IN (0x0001)
    Time to live: 48 minutes, 56 seconds
    Data length: 4
    Addr: 91.220.65.27
```

```
16 193.942190      10.12.2.1       10.12.0.1      DNS   Standard query NAPTR airties.com
17 193.944356      10.12.0.1       10.12.2.1      DNS   Standard query response NAPTR 2 0 s NAPTR 2 0 s
18 194.011848      10.12.2.1       10.12.0.1      DNS   Standard query SRV _sip._tcp.airties.com
19 194.013156      10.12.0.1       10.12.2.1      DNS   Standard query response SRV 1 0 5060 uc2.airties.com SRV 2 0 5060 uc1.airties.com
20 194.017134      10.12.2.1       10.12.0.1      DNS   Standard query A uc2.airties.com
21 194.017758      10.12.0.1       10.12.2.1      DNS   Standard query response A 91.220.65.27
22 194.026062      10.12.2.1       10.12.0.1      DNS   Standard query A uc1.airties.com
23 194.026618      10.12.0.1       10.12.2.1      DNS   Standard query response A 91.220.65.26
24 194.040169      10.12.2.1       10.12.0.1      DNS   Standard query SRV _sip._udp.airties.com
25 194.041494      10.12.0.1       10.12.2.1      DNS   Standard query response SRV 2 0 5060 uc1.airties.com SRV 1 0 5060 uc2.airties.com
26 194.192043      10.12.2.1       91.220.65.27   SIP   Request: REGISTER sip:airties.com
27 194.197000      91.220.65.27    10.12.2.1      SIP   Status: 401 Unauthorized    (0 bindings)
28 195.696335      10.12.2.1       91.220.65.27   SIP   Request: REGISTER sip:airties.com
29 195.701767      91.220.65.27    10.12.2.1      SIP   Status: 423 Registration Too Brief    (0 bindings)
30 195.845413      10.12.2.1       224.0.1.75     SIP   Request: SUBSCRIBE sip:MAC0015651a108b@224.0.1.75
31 195.901397      10.12.2.1       91.220.65.27   SIP   Request: REGISTER sip:airties.com
32 195.909072      91.220.65.27    10.12.2.1      SIP   Status: 200 OK    (1 bindings)
33 196.706830      10.12.2.1       91.220.65.27   SIP   Request: SUBSCRIBE sip:6903@airties.com
34 196.711394      91.220.65.27    10.12.2.1      SIP   Status: 401 Unauthorized
35 196.020012      10.12.2.1       91.220.65.27   STD   Request: SUBSCRIBE sip:6902@airties.com
```

```
⊞ Frame 23 (91 bytes on wire, 91 bytes captured)
⊞ Ethernet II, Src: JuniperN_17:68:8a (00:21:59:17:68:8a), Dst: XiamenYe_1a:10:8b (00:15:65:1a:10:8b)
⊞ Internet Protocol, Src: 10.12.0.1 (10.12.0.1), Dst: 10.12.2.1 (10.12.2.1)
⊞ User Datagram Protocol, Src Port: domain (53), Dst Port: blackjack (1025)
⊟ Domain Name System (response)
     [Request In: 24]
     [Time: -0.013551000 seconds]
     Transaction ID: 0x0002
   ⊞ Flags: 0x8100 (Standard query response, No error)
     Questions: 1
     Answer RRs: 1
     Authority RRs: 0
     Additional RRs: 0
   ⊞ Queries
   ⊟ Answers
     ⊟ uc1.airties.com: type A, class IN, addr 91.220.65.26
          Name: uc1.airties.com
          Type: A (Host address)
          Class: IN (0x0001)
          Time to live: 48 minutes, 55 seconds
          Data length: 4
          Addr: 91.220.65.26
```

Then from the NAPTR record "_sip._udp. airties.com" , Yealink Phone gets the same SRV
records, so the DNS-SRV records should be listed as below:

| SIP Server DN | NAPTR | SRV | | | IP Address |
|---|---|---|---|---|---|
| | | Host name | priority | port | |
| airties.com | _sip._Tcp. airties.com | uc2. irties.com | 1 | 5060 | 91.220.65.27 |
| | | Uc1. irties.com | 2 | 5060 | 91.220.65.26 |
| | _sip._udp. airties.com | uc2. irties.com | 1 | 5060 | 91.220.65.27 |
| | | Uc1. irties.com | 2 | 5060 | 91.220.65.26 |

So refer to RFC 3263, Yealink Phone then sends the Register Request to the first IP Address of
the sip server 91.220.65.27 with the transport type of TCP. When the first server is
down ,Yealink Phone will try the second sip server。

| 16 193.942190 | 10.12.2.1 | 10.12.0.1 | DNS | Standard query NAPTR airties.com |
|---|---|---|---|---|
| 17 193.944356 | 10.12.0.1 | 10.12.2.1 | DNS | Standard query response NAPTR 2 0 s NAPTR 2 0 s |
| 18 194.011848 | 10.12.2.1 | 10.12.0.1 | DNS | Standard query SRV _sip._tcp.airties.com |
| 19 194.013156 | 10.12.0.1 | 10.12.2.1 | DNS | Standard query response SRV 1 0 5060 uc2.airties.com SRV 2 0 5060 uc1.airties.com |
| 20 194.017134 | 10.12.2.1 | 10.12.0.1 | DNS | Standard query A uc2.airties.com |
| 21 194.017758 | 10.12.0.1 | 10.12.2.1 | DNS | Standard query response A 91.220.65.27 |
| 22 194.026062 | 10.12.2.1 | 10.12.0.1 | DNS | Standard query A uc1.airties.com |
| 23 194.026618 | 10.12.0.1 | 10.12.2.1 | DNS | Standard query response A 91.220.65.26 |
| 24 194.040169 | 10.12.2.1 | 10.12.0.1 | DNS | Standard query SRV _sip._udp.airties.com |
| 25 194.041494 | 10.12.0.1 | 10.12.2.1 | DNS | Standard query response SRV 2 0 5060 uc1.airties.com SRV 1 0 5060 uc2.airties.com |
| 26 194.192043 | 10.12.2.1 | 91.220.65.27 | SIP | Request: REGISTER sip:airties.com |
| 27 194.197000 | 91.220.65.27 | 10.12.2.1 | SIP | Status: 401 Unauthorized    (0 bindings) |
| 28 195.696335 | 10.12.2.1 | 91.220.65.27 | SIP | Request: REGISTER sip:airties.com |
| 29 195.701767 | 91.220.65.27 | 10.12.2.1 | SIP | Status: 423 Registration Too Brief    (0 bindings) |
| 30 195.845413 | 10.12.2.1 | 224.0.1.75 | SIP | Request: SUBSCRIBE sip:MAC0015651a108b@224.0.1.75 |
| 31 195.901397 | 10.12.2.1 | 91.220.65.27 | SIP | Request: REGISTER sip:airties.com |
| 32 195.909072 | 91.220.65.27 | 10.12.2.1 | SIP | Status: 200 OK    (1 bindings) |
| 33 196.706830 | 10.12.2.1 | 91.220.65.27 | SIP | Request: SUBSCRIBE sip:6903@airties.com |
| 34 196.711394 | 91.220.65.27 | 10.12.2.1 | SIP | Status: 401 Unauthorized |
| 25 196.020012 | 10.12.2.1 | 91.220.65.27 | SIP | Request: SUBSCRIBE sip:6903@airties.com |

Frame 26 (549 bytes on wire, 549 bytes captured)
Ethernet II, Src: XiamenYe_1a:10:8b (00:15:65:1a:10:8b), Dst: JuniperN_17:68:8a (00:21:59:17:68:8a)
Internet Protocol, Src: 10.12.2.1 (10.12.2.1), Dst: 91.220.65.27 (91.220.65.27)
Transmission Control Protocol, Src Port: nav-port (3859), Dst Port: sip (5060), Seq: 1, Ack: 1, Len: 483
Session Initiation Protocol
⊞ Request-Line: REGISTER sip:airties.com SIP/2.0
⊟ Message Header
    ⊞ Via: SIP/2.0/TCP 10.12.2.1:5062;branch=z9hG4bk109393139
    ⊞ From: "6903" <sip:6903@airties.com>;tag=1445564399
    ⊞ To: "6903" <sip:6903@airties.com>
      Call-ID: 1730047149@10.12.2.1
    ⊞ CSeq: 1 REGISTER
    ⊞ Contact: <sip:6903@10.12.2.1:5062;transport=TCP>
      Allow: INVITE, INFO, PRACK, ACK, BYE, CANCEL, OPTIONS, NOTIFY, REGISTER, SUBSCRIBE, REFER, PUBLISH, UPDATE, MESSAGE
      Max-Forwards: 70
      User-Agent: Yealink IP116 2.60.4.2
      Expires: 180
      Content-Length: 0

*For more information about DNS-SRV , please refer to RFC3263.*