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Standard configuration and subscriber requirements.

- The service is based on the Session Initiation Protocol (SIP) protocol: RFC 3261, RFC 2543.
- Puzzel sends only SIP messages to the Subscriber. Signal messages sent by the Subscriber based on protocols other than SIP will not be serviced.
- The Subscriber shall only configure the G.711a voice codec (for incoming and outgoing calls). The Packetization time of G711a is 20 milliseconds.
- For outgoing calls, the Format of the numbers shall be (for example numbers in Norway):
  A: +47xxxxxxxx - E.164 - international format B: +47xxxxxxxx - E.164 - international format.
- Outgoing calls made only by IP address selection are not serviced.
- The Subscriber shall respond to the SIP «OPTIONS» (Puzzel periodically sent messages to monitor availability of the trunk). If there is no SIP «OPTIONS» response, Puzzel will consider the signaling link inactive till receiving valid response message from the Subscriber.
- UDP ports for RTP packets need to be on a port larger than 1024.
- For fax communication is recommended that the Subscriber equipment is configured for T.38 + fallback to G.711a.
- For DTMF signals, "Dynamic RFC2833" shall be used.
- Puzzel provides CLIP and CLIR.
  - For CLIP service, Puzzel provides the caller's number information. Providing of CID information to Puzzel is the responsibility of the customer.
  - The CLIR service is activated by and in the client equipment by sending "Anonymous" in the corresponding fields of the initial "Invite" message sent to Puzzel for outgoing calls. If this is matched, Puzzel will not provide CLIP information to the called subscriber.
- If the Subscriber is using dynamic IP address it is mandatory to use SIP register for authentication with username and password in Puzzel platform.
- The Subscriber must send/receive calls/options from both Puzzel SBC (IP's)
- The Subscriber must support crossover connection/full mesh.
- For redundancy, Puzzel support multiple IP addresses per trunk.

Recommended:

- For inbound calls subscriber should support the SIP "183 Ringing with SDP" alert message.
- Puzzel accepts SIP signaling messages on UDP port 5060.

Examples on the next page.

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Examples:

INVITE:

INVITE sip:+XXXXXXXXXX@[puzzel.ip.addr];user=phone SIP/2.0
Via: SIP/2.0/TCP [supplier.ip.addr]:5060
To: sip:+XXXXXXXXXX@[puzzel.ip.addr];user=phone
From: sip:+YYYYYYYYYY@[supplier.ip.addr]
Call-ID: xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
CSeq: 1 INVITE
Max-Forwards: 70 *[don't manipulate]*
Content-Length: *XXX*
Contact: sip:xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx@[supplier.ip.addr]:5060;transport=tcp;audio *[tcp or udp]*
Content-Type: application/sdp
Allow: REGISTER, REFER, NOTIFY, SUBSCRIBE, UPDATE, PRACK, MESSAGE, INFO, INVITE, ACK, OPTIONS, CANCEL, BYE
Accept: application/sdp
Supported: timer, 100rel, replaces, precondition, histinfo
P-Asserted-Identity: sip:+ZZZZZZZZZZ@[supplier.ip.addr]
Session-Expires: *XXXX*
User-Agent: *[partner SBC identifier]*
Session-ID: xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

v=0
o=- xxxxxxxxx yyyyyyyyy IN IP4 [supplier.ip.addr]
s=-
t=0 0
c=IN IP4 [supplier-media.ip.addr]
m=audio xxxxx RTP/AVP 8 101
a=ptime:20
a=rtpmap:8 PCMA/8000
a=rtpmap:101 telephone-event/8000
a=fmtp:101 0-15