

Overview for Asterisk bulk calling with an ISP number:

Asterisk is acting as a **PBX (Private Branch Exchange)** system. When we run the bulk call script, Asterisk will:

1. **Register with the ISP SIP Server:** Authenticate using the ISP-provided number.
2. **Initiate Calls:** Generate calls to multiple numbers using the SIP trunk.
3. **Route Calls via SIP Trunk:** Use the configured SIP trunk to send calls through the ISP.
4. **Playback Message (Optional):** Optionally play an audio file or test call tone.

Key Components Explained:

1. SIP Trunk (sip.conf):

- **Purpose:** Connects Asterisk to our ISP for making outbound calls.
- **Configuration:**

```
register => ISPUSENAME:ISPPASSWORD@ISP_SERVER_IP
```

- **Register:** Authenticates with the ISP using the provided credentials.
- **Fromuser:** The number provided by our ISP used for outgoing calls.
- **Host:** The ISP's SIP server IP.

2. Dial Plan (extensions.conf):

- **Purpose:** Controls how calls are handled once they reach Asterisk.
- **Configuration:**

```
[from-trunk]
exten => _X.,1,Dial(SIP/${EXTEN}@mysiptrunk)
exten => _X.,n,Hangup()
```

- from-trunk: Call context defined for incoming/outgoing calls.
- exten => _X.: Matches any number dialed.
- Dial(SIP/\${EXTEN}@mysiptrunk): Dials the number using the SIP trunk.

3. Bulk Call Python Script:

- **Purpose:** Automates multiple calls by interacting with Asterisk via CLI.
- **Workflow:**

```
os.system(f"asterisk -rx 'channel originate SIP/{phone_number}@mysiptrunk application Playback hello-world'")
```

- The script uses asterisk -rx to send commands to the Asterisk CLI.
- channel originate: Generates a new call.
- Playback hello-world: Plays a test audio file after connecting.

4. Call Flow Example:

1. **User runs the script.**
2. Asterisk **authenticates with the ISP** using the credentials in sip.conf.
3. For each number, Asterisk **initiates a call** using the command sent from Python.
4. The call is **routed through the SIP trunk**.
5. If the call connects, **Asterisk plays an audio file** (hello-world).
6. The **result is logged** in the Python script for success/failure.

How to Verify if Calls Are Working?

- Run: `sudo asterisk -rvvv` (Opens Asterisk CLI)
- Check active calls: `core show channels`
- Call success/failure logs: Check the **Python log file** (bulk_call_log.txt).