SIP Web Phone & Extension Manager

(FreeSWITCH + WebRTC)

1. Overview

This system provides:

- A **browser-based SIP softphone** (WebRTC via JsSIP)
- A **web-based admin page** to manage FreeSWITCH extensions
- Static **FreeSWITCH XML directory** backend
- No SIP logic in Python — the backend only:
    - Serves HTML
    - Edits XML
    - Runs `fs_cli -x reloadxml`

2. Access URLs

Function	URL
SIP Softphone	`https://<domain>/sip`
Extension Admin	`https://<domain>/sip/admin`

A small ⚙ **gear icon** appears at the top of the page **top-right of the softphone page** and links to the admin page.

3. SIP Softphone Page

Features

- Register SIP extension via **WSS**
- Make / receive calls between extensions
- Dial pad with **backspace (⌫)**
- Light / Dark theme toggle
- Works with FreeSWITCH `mod_sofia` (WebSocket)

Screenshot ① – SIP Softphone

SIP 웹폰 데모
브라우저에서 바로 테스트용 / simple web test   ☀ 라이트 모드

간단 SIP 웹폰
Simple SIP Web Phone

WebSocket 서버 (WS/WSS) Server URL

> wss://freeswitch.throw.im:7443

SIP 도메인 SIP Domain

> 43.202.112.167

내 내선번호 (Extension / SIP user)

> 1000

비밀번호 Password

> ••••••••••••••••••

등록 / Register

통화 종료 / Call ended

발신할 내선번호 (Number to dial)

> 1111

1	2	3
4	5	6
7	8	9
*	0	⌫

통화 / Call   **끊기 / Hang Up**

참고: 이 페이지는 브라우저 → PBX(예: FreeSWITCH)로 WebSocket(SIP over WebSocket)만 사용합니다. Python 백엔드는 HTML만 서빙합니다. (simple static server only)

4. Extension Admin Page

Purpose

Manage **static XML extensions** located at:

```
/usr/local/freeswitch/conf/vanilla/directory/default/
```

Each extension corresponds to:

```
<extension>.xml
```

Available Actions

- Create extension
- Set / reset password
- Edit caller ID name / number
- Delete extension
- Auto-runs `reloadxml` after every change

Screenshot ② – Extension Manager

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5. Admin Authentication (Important)

How admin protection works

The admin page and API are protected using **HTTP Basic Auth**.

Authentication is **enabled only if** the environment variable is set:

```
SIP_ADMIN_PASS=<password>
```

Optional:

```
SIP_ADMIN_USER=admin    # default: admin
```

Behavior

| Condition	Result
`SIP_ADMIN_PASS` unset	Admin page is open (dev mode)
`SIP_ADMIN_PASS` set	Browser prompts for username/password

Browser prompt

When you first visit `/sip/admin`, the browser shows a login dialog.

- **Username:** `admin` (or `SIP_ADMIN_USER`)
- **Password:** value of `SIP_ADMIN_PASS` (!insunet-fc)

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6. Password Handling

- Passwords are stored in **FreeSWITCH XML**
- On creation:
    - If password field is empty → auto-generate
- On reset:
    - You can enter a custom password
    - Or leave blank to auto-generate
- Generated password is shown **once only**

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7. Call Flow Summary

```
Browser (JsSIP)
    |
    |   SIP over WSS
    |
FreeSWITCH (mod_sofia)
    |
```
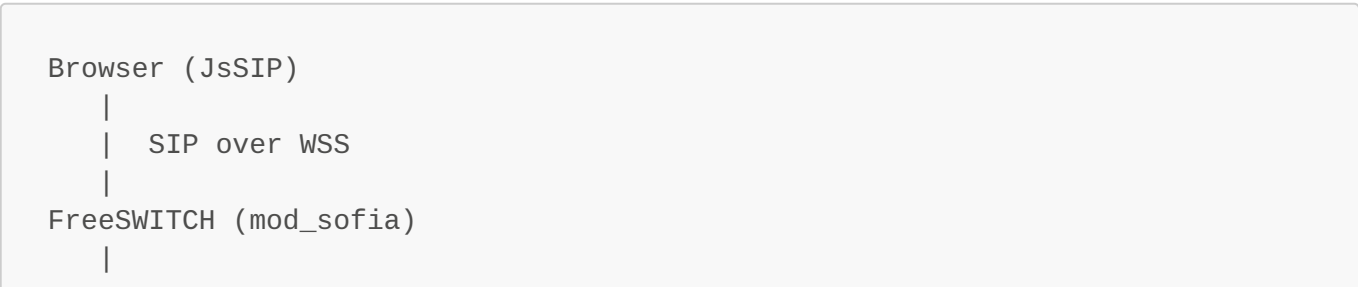
```
    |   RTP / SRTP
    |
Browser / SIP Phone
```

8. Operational Notes

- If audio becomes one-way:
  - Reload page
  - Re-register
  - Check browser mic permissions
- All extension changes require:
  - Write permission on directory XML
  - Successful `reloadxml`

9. Restart Commands

After code changes:

```
python3 -m py_compile sip_app.py
sudo systemctl restart sipapp
```

FreeSWITCH reload (automatic via admin):

```
fs_cli -x reloadxml
```