

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	<code>https://<domain>/sip</code>
Extension Admin	<code>https://<domain>/sip/admin</code>

A small  gear icon appears at the 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

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

The screenshot shows the 'FreeSWITCH 내선 관리 (정적 XML) / FreeSWITCH Extensions (static XML)' page. The top navigation bar includes tabs for 'SIP WebPhone' and 'Softphone', with the '내선 관리 / Extensions' tab being active. Below the tabs, there are input fields for '내선번호 / Extension' (e.g., 1102), '표시 이름 (선택) / Display name (optional)' (e.g., Calling as 1102), '발신자 번호 (선택) / Caller ID number (optional)' (e.g., 1102), and '비밀번호 (선택) / Password (optional)' (auto-generate if empty). A '생성 / Create' button is visible. The main content area displays a table of extensions with columns: Ext, Caller ID Name, Caller ID #, Has Auth, and 동작 / Actions. The table lists 10 extensions from 1000 to 1009, each with a '비밀번호 재설정 / Reset PW' and '삭제 / Delete' button.

Ext	Caller ID Name	Caller ID #	Has Auth	동작 / Actions
1000 11/28/2025, 10:00:15 AM	Extension 1000	1000	yes	<button>비밀번호 재설정 / Reset PW</button> <button>삭제 / Delete</button>
1001 11/28/2025, 9:30:37 AM	Extension 1001	1001	yes	<button>비밀번호 재설정 / Reset PW</button> <button>삭제 / Delete</button>
1002 11/28/2025, 9:30:37 AM	Extension 1002	1002	yes	<button>비밀번호 재설정 / Reset PW</button> <button>삭제 / Delete</button>
1003 11/28/2025, 9:30:37 AM	Extension 1003	1003	yes	<button>비밀번호 재설정 / Reset PW</button> <button>삭제 / Delete</button>
1004 11/28/2025, 9:30:37 AM	Extension 1004	1004	yes	<button>비밀번호 재설정 / Reset PW</button> <button>삭제 / Delete</button>
1005 11/28/2025, 9:30:37 AM	Extension 1005	1005	yes	<button>비밀번호 재설정 / Reset PW</button> <button>삭제 / Delete</button>
1006 11/28/2025, 9:30:37 AM	Extension 1006	1006	yes	<button>비밀번호 재설정 / Reset PW</button> <button>삭제 / Delete</button>
1007 11/28/2025, 9:30:37 AM	Extension 1007	1007	yes	<button>비밀번호 재설정 / Reset PW</button> <button>삭제 / Delete</button>
1008 11/28/2025, 9:30:37 AM	Extension 1008	1008	yes	<button>비밀번호 재설정 / Reset PW</button> <button>삭제 / Delete</button>
1009 11/28/2025, 9:30:37 AM	Extension 1009	1009	yes	<button>비밀번호 재설정 / Reset PW</button> <button>삭제 / Delete</button>

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)

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**

7. Call Flow Summary

```
Browser (JsSIP)
  |
  | SIP over WSS
  |
FreeSWITCH (mod_sofia)
  |
```



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
```