MWIFIEX Driver Flow: From init_module() to Wi-Fi Connect

Overview

This document explains the full flow of the mwifiex Wi-Fi driver starting from init_module() until the chip receives the connect command via SDIO. It is based on the GitHub repository: https://github.com/nxp-imx/mwifiex

Step 1: init_module()

File: mlinux/moal_main.c

This is the first function called when the driver is loaded using insmod. It calls woal_init_module().

Step 2: woal_init_module()

Initializes module memory, parses parameters, and calls woal_bus_register().

Step 3: woal_bus_register()

Located in mlinux/moal_sdio_mmc.c. Registers the SDIO driver via sdio_register_driver().

Step 4: mwifiex_sdio_probe()

File: mlan/mlan_sdio.c

Called by the kernel when SDIO device is matched. Allocates adapter, interface, and calls woal_add_card().

Step 5: woal_add_card()

File: mlinux/moal_main.c

Initializes moal_handle and mlan private structures. Calls mlan_register().

Step 6: mlan_register()

File: mlan/mlan_main.c

Sets up adapter communication logic with firmware.

Step 7: Register wlan0

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Driver registers wlan0 netdev and connects cfg80211 hooks.

Step 8: Application Connect

App like wpa_supplicant or iw triggers connect.

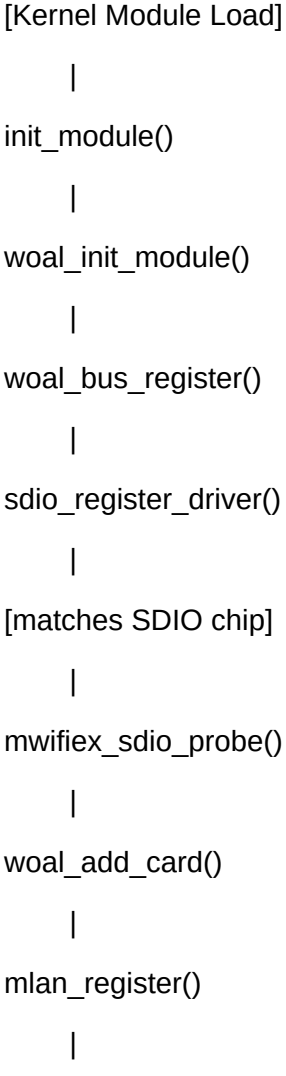
Calls mwifiex_cfg80211_connect() in moal_cfg80211.c

Step 9: Send to Firmware

Inside connect: calls woal_send_cmd() with HostCmd_CMD_802_11_SSID.

Connect command sent to chip via SDIO.

Flowchart



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register wlan0

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[iw / wpa_supplicant connects]

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mwifiex_cfg80211_connect()

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woal_send_cmd() --> firmware via SDIO