Configure Dual SIM Feature and SIM Failover

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Introduction

This document describes the concept and configuration of dual Subscriber Identity Module (SIM) on 4G WAN fixed routers and modules. It also discusses the failover scenarios between two SIM cards and provides Embedded Event Manager (EEM) script for manual SIM failover.

Prerequisites

Requirements

Cisco recommends that you have knowledge of these topics:

- LTE Technology
- Configuration of LTE Technology on a Cisco Router

Components Used

The information in this document is based on these software and hardware versions:

- Cisco 4G fixed Routers
- Modules which supports dual SIM feature

The information in this document was created from the devices in a specific lab environment. All of the devices used in this document started with a cleared (default) configuration. If your network is live, make sure that you understand the potential impact of any command.

Configure

Dual SIM Configuration

Step 1. Create APN profiles for the SIM:
This is an example of APN configuration on a Cisco Router:

Router#cellular 0/0/0 lte profile create 1 apn.com pap test 12345

You can create one more APN profile for the second SIM in the same, as mentioned in this example:

Router#cellular 0/0/0 lte profile create 2 test.com

Step 2. Apply the configured profile number to the SIM and its slot number which uses these configurations:

```
router# configure terminal
router(config)# controller Cellular 0
router(config-controller)# lte sim data-profile 1 attach-profile 1 slot 0
router(config-controller)# lte sim data-profile 2 attach-profile 2 slot 1
```

Step 3. SIM slot 0 is the primary and slot 1 is the backup by default. In order to configure slot 1 as the primary, use these configurations:

```
router# configure terminal
router(config)# controller Cellular 0
router(config-controller)# lte sim primary slot 1
```

**EEM Script for SIM failover**

The dual SIM feature provides a failover mechanism in case the active SIM loses connectivity to the network. When primary SIM loses connectivity, it switches to the secondary SIM. However, it does not switch back to the primary, once the primary SIM regains the connectivity to network. Moreover, it switches back to the primary only when secondary SIM loses connectivity to the network.

In certain situations like loss of signal/service, failover mechanism might not trigger properly. In such cases, you can use an EEM script which could track parameters like RSSI value, network status etc. and perform SIM failover upon reaching a specified threshold value. This is an example for an EEM script, to perform SIM failover.

```
event manager applet SIM-FALLBACK
event snmp oid 1.3.6.1.4.1.9.9.661.1.3.2.1.4.14 get-type exact entry-op le entry-val "2" poll-interval 120
action 1.0 cli command "enable"
action 1.1 cli command "clear interface cellular 0"
action 1.2 cli command "cellular 0 gsm sim activate slot 1"
action 1.3 cli command "end"
action 1.4 cli command "clear ip route *"
```

**Verify**

Use this section in order to confirm that your configuration works properly.

These commands display the active profile on the Cellular modem:
router# show cellular 0 profile
Profile Information
====================
Profile 1 = INACTIVE
--------
PDP Type = IPv4
Access Point Name (APN) = test.com

Profile 2 = ACTIVE* **
--------
PDP Type = IPv4
PDP address = 10.1.1.1
Access Point Name (APN) = test.cisco.com
Primary DNS address = 192.168.100.10
Secondary DNS address = 192.168.100.19
* - Default profile
** - LTE attach profile

Configured default profile for active SIM 1 is profile 2.

These commands can be used to display the status of a SIM:

router# show cellular 0 security
Card Holder Verification (CHV1) = Disabled
SIM Status = OK
SIM User Operation Required = None
Number of CHV1 Retries remaining = 255

These commands displays dual SIM status:

router# show controller cellular 0
Interface Cellular0
4G WWAN Modem - Global Multimode LTE/DC-HSPA+/HSPA+/HSPA/UMTS/EDGE/GPRS

Cellular modem configuration
======================================
Modem is recognized as valid
manufacture id: 0x00001199 product id: 0x000068A2
Power status: Active
Sierra Wireless Direct IP MC7710 modem

Cellular Dual SIM details:
----------------------------
SIM 0 is present
SIM 1 is present
SIM 0 is active SIM

Troubleshoot

There is currently no specific troubleshooting information available for this configuration.

Related Information

- **4G LTE software configuration**
- **Technical Support & Documentation - Cisco Systems**