Upgrade Firmware on Cisco Connected Grid WPAN Module for the CGR 1000

Contents

Introduction

This document describes steps to upgrade Wireless Personal Area Network (WPAN) module on Cisco 1000 Series Connected Grid Router (CGR).

Prerequisites

Requirements

There are no specific requirements for this document.

Components Used

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

- CGM-WPAN-FSK-NA
- CGR-1120
- CGR-1240
- IOS and CG-OS

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.

Upgrade Steps for WPAN Firmware

There are two ways to upgrade WPAN firmware :

1. Upgrade from WPAN firmware image integrated within IOS/CGOS CGR image.

2. Upgrade from Non-integrated standalone WPAN firmware image.

> **Note**: WPAN in CGR IOS supports WPAN 5.x firmware only. It does not support WPAN 3.7 (c1222r). WPAN in CGR CGOS supports latest CG-Mesh firmware branches 5.5.x, 5.5.7 or later.

Upgrade from WPAN Firmware Image Integrated within IOS/CGOS CGR Image

Step 1. Install the release firmware

For IOS

```
Router (config-if)# install-firmware release
```
For CGOS

```
Router (config-if)# install firmware release
```
Step 2. Reload the the WPAN module

For IOS

```
Router# hw reload <slot>
```
For CGOS

```
Router# reload module <module >
```
Step 3. Check WPAN hardware version

Ensure that **feature c1222r** is disabled before you run this CLI.

```
Router(config)# no feature c1222r      // not necessary if already disabled
```
For IOS

```
Router #show wpan 3/1 hardware version

firmware version: 5.5.80, apps/bridge, master, 1ca0551, Feb 10 2015
```
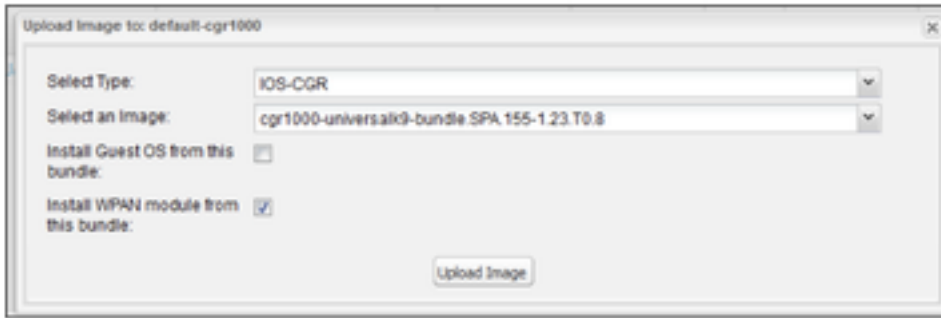For CGOS

```
Router# show wpan in-hardware version

version: 5.1.8, test/bridge, cg-mesh-5.1.8, dd91722, Sep  5 2012
```
Use FND to install firmward for IOS CGR.

1. Upload the CGR IOS image integrated with WPAN Firmware image to the NMS

2. Upload the image with the checkbox **Install WPAN module from this bundle** selected to the routers in the group.

3. After the image has been successfully transferred to the devices, install the images on the router. And after successful completion the WPAN modules should have been upgraded .

Upgrade from Non-integrated Standalone WPAN Firmware Image

Use this procedure to upgrade the WPAN to a non-integrated, custom firmware:

Step 1. Install the non-integrated firmware

For IOS

```
Router(config-if)#install firmware <firmware-filename>
```
For CGOS

```
Router(config-if)# install-firmware <firmware-filename>
```
Step 2. Reload the the WPAN module

For IOS

```
Router# hw reload <slot>
```
For CGOS

```
Router# reload module <module >
```
Step 3. Check WPAN hardware version

For IOS

```
Router #show wpan 3/1 hardware version

firmware version: 5.5.80, apps/bridge, master, 1ca0551, Feb 10 2015
```
For CGOS

```
AST05-CGR# show wpan in-hardware version

version: 5.1.8, test/bridge, cg-mesh-5.1.8, dd91722, Sep  5 2012
```
Use FND to install image on WPAN module for IOS CGR.

WPAN images can exist independent of the IOS images and hence they can be uploaded and installed on the router directly. WPAN images currently have two different types - one for RF WPAN card and the other for PLC WPAN card. Only one image upload and install image would be handled at a time on WPAN module.

1. Upload the WPAN firmware image(s) to the Network Management Systems (NMS) (this is already talked about).

2. Upload the WPAN firmware image (PLC or RF) from the NMS to the routers of the selected group.

3. After the image has been successfully transferred to the devices, install the images on the router. For WPAN firmware images, even if the version installed and the version uploaded are same, the image is still installed (unlike the treatment of other images like IOS integrated image).

Upgrade WPAN Firmware from 3.7 to 5.0 in CGOS

Step 1. Ensure you have WPAN 3.7 with feature c1222r enabled

Check that **feature c1222r** is enabled, and WPAN firmware is 3.7 with CommModuleVersion 14.58 (refer to 'How to determine current WPAN firmware version' section).

Step 2. Install WPAN 5.0 release firmware

```
Routerr# conf t
Router(config)# interface wpan 4/1
router(config-if)# install firmware release

Note: Firmware upgrade starting... this may take several minutes...
Installed the wpan firmware successfully. Reload the wpan module!!
```

Step 3. Turn off feature c1222r

You must turn off the feature c1222r (which is for wpan 3.7) so that wpan 5.0 can take over.

```
Router(config)# no feature c1222r
```

Step 4. Reload the WPAN module

After reload the wpan module, the new firmware takes effect.

```
Router(config)# reload module 4
```
Example: Upgrade Firmware from 3.7 to 5.0

```
Router# conf t Router(config)# feature c1222r Router(config)# show c1222r info global Build:
Version : 1.1.7.0 May 8 2012 15:02:39 CommModuleVersion : 14.58 Router(config)# interface wpan
```

```
4/1 Router(config-if)# install firmware release Note: Firmware upgrade starting... this may take
several minutes... Installed the wpan firmware successfully. Reload the wpan module!!
Router(config-if)# Router(config-if)# exit Router(config)# no feature c1222r Router(config)#
reload module 4 Router(config)# show wpan in-hardware version version: 5.0.75, test/bridge, cg-
mesh-5.0.75, 8716ac2, Apr 27 2012
```

Upgrade WPAN Firmware from 5.0 to 3.7 in CGOS

Step 1. Ensure you have WPAN 5.0 with feature c1222r disabled

Check that **feature c1222r** is disabled, and WPAN firmware is 5.0. (refer to 'How to determine
current WPAN firmware version' section).

Step 2. Install 3.7 firmware

Config t

Int WPAN 4/1

install firmware <>

Step 3. Turn on feature c1222r

You must turn on the feature c1222r for wpan 3.7 to be enabled.

Step 4. Reload the WPAN module

After reload the wpan module, the new firmware takes effect.

Example: Upgrade firmware from 5.0 to 3.7

```
router# show wpan in-hardware version
version: 5.1.8, test/bridge, cg-mesh-5.1.8, dd91722, Sep  5 2012
router# conf t
router(config)# interface wpan 4/1
router(config-if)# install firmware to_3_7F
Note: Firmware upgrade starting... this may take several minutes...
Installed the wpan firmware successfully. Reload the wpan module!!
2012 Oct 16 10:01:55 router %$ VDC-1 %$ %USER-1-SYSTEM_MSG: Exiting - cm-upg.bin
router(config-if)#exit
router(config)# feature c1222rF
router(config)# reload module 4
reloading module 4 ...
2012 Oct 16 10:03:19 router %$ VDC-1 %$ %PLATFORM-2-PFM_MODULE_RESET: Manual restart of Module 4
from Command Line Interface
router(config)# 2012 Oct 16 10:03:42 router %$ VDC-1 %$ %USER-2-SYSTEM_MSG: act2l_db_read():
Slot 4 - Quack  - act2l
2012 Oct 16 10:03:46 router %$ VDC-1 %$ %USER-2-SYSTEM_MSG: act2l_authenticate_module(): Quack
chip OK for development  - act2l
2012 Oct 16 10:03:46 router %$ VDC-1 %$ %PLATFORM-2-MOD_DETECT: Module 4 detected (Serial number
) Module-Type Connected Grid Module - IEEE 802.15.4e/g WPAN 900 MHz Model CALABRIA
2012 Oct 16 10:03:46 router %$ VDC-1 %$ %PLATFORM-2-MOD_PWRUP: Module 4 powered up (Serial
number )
2012 Oct 16 10:03:57 router %$ VDC-1 %$ %USER-2-SYSTEM_MSG: act2l_db_read(): Slot 4 - Quack  -
act2l
2012 Oct 16 10:04:01 router %$ VDC-1 %$ %USER-2-SYSTEM_MSG: act2l_authenticate_module(): Quack
```

```
chip OK for development  - act2l
2012 Oct 16 10:04:15 router %$ VDC-1 %$ %C1222R-1-ITRON_SDK_LOG_ALERT: Configuration file not
found. Using defaults.


router(config)# show c1222r info global | grep -i version
    Version                              : 1.2.2.0 Oct 15 2012 16:45:36
    CommModuleVersion                    : 14.73
```