Release Notes for Wireless LAN Controller Field Upgrade Software for Release 1.7.0.0-FUS

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Contents

These release notes contain the following topics:

Introduction

Cisco Wireless LAN Controller Field Upgrade Software (FUS) is a special AES package that performs various system-related component upgrades. We recommend that you install the FUS image to upgrade components such as the bootloader, field recovery image, FPGA/MCU, and other firmware to their latest respective versions.

Note On a Cisco 5500 Series Controller, it is observed that the controller sporadically reboots (due to a defect CSCtr39523) and displays the following FPGA error message:

```
fpga: Lost heartbeat from Environment controller, system will reboot in 5 seconds!!!
```

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A crash file is not created to debug or troubleshoot the error.
You can resolve this issue by installing the FUS image. Please see Resolved Caveats, page 13 for more details.

Table 1 lists the components that are upgraded after you install Field Upgrade Software for various controller platforms.

Table 1 Components Upgraded

Controller Platform	Components Upgraded
Cisco 5500 Series Wireless Controllers	• Field Recovery Image is upgraded to runtime image version • Bootloader is upgraded to 1.0.16 • Offline Field Diagnostics is upgraded to 0.9.28 • FPGA Revision version is upgraded to 1.7 • Environment Controller (MCU) Image version is upgraded to 1.8 • USB Console Revision version is upgraded to 2.2
Cisco Wireless Services Module 2 (WiSM2)	• Field Recovery Image is upgraded to runtime image version. • Bootloader is upgraded to 1.0.16 • Offline Field Diagnostics is upgraded to 0.9.28 • USB Console Revision version is upgraded to 2.2 **Note** Due to a software issue, the FPGA does not get upgraded in a WiSM2 controller even though the console output indicates that it has been upgraded.
Cisco Flex 7500 Series Controllers	RAID firmware

Note You must install the FUS image only if you do not have the versions of the components mentioned above. To see what versions are present, use the `show sysinfo` command. For example:

```
(controller)>show sysinfo
[ ... ]
Firmware Version.............................. FPGA 1.3, Env 1.6, USB console 1.27
```

This indicates that the FPGA version is 1.3 (which is less than 1.7), so the FUS upgrade must be performed.

Guidelines and Limitations

Caution Ensure that there are no power outages during the upgrade. Power outages during the upgrade may lead to the controller not being usable.

- This release of the Field Upgrade Software is applicable to Cisco Wireless LAN Controllers that are installed with the controller software release 6.0 and later.
- You must install the FUS image only once.
- Console access to the WLC during the upgrade process is not required. However it is recommended, so that you can monitor the progress of the process.
- The FUS upgrade process will reboot the wireless LAN controller several times, and reboot the default runtime image. The whole process takes approximately 30 minutes.
- After you install the FUS image for a Cisco Flex 7500 Controller platform, the RAID firmware is also upgraded. During the installation process, the console messages displayed do indicate upgrade of the RAID firmware. However, it is not possible to verify the RAID firmware upgrade either by entering a command or viewing the bootlog.

Downloading Field Upgrade Software

Step 1 Go to the Cisco Software Center at this URL: http://www.cisco.com/cisco/software/navigator.html

Step 2 Choose **Products > Wireless > Wireless LAN Controller**.

Step 3 Choose either of the following depending on the controller platform you use:

- **Integrated Controllers and Controller Modules**
- **Standalone Controllers**

Step 4 Choose the controller model number or name. The **Download Software** page is displayed.

Step 5 Choose **Wireless LAN Controller Software**.

Step 6 Click a controller software release. The software releases are labeled as follows to help you determine which release to download:

- **Early Deployment (ED)**—These software releases provide new features and new hardware platform support as well as bug fixes.
- **Maintenance Deployment (MD)**—These software releases provide bug fixes and ongoing software maintenance.
- **Deferred (DF)**—These software releases have been deferred. We recommend that you migrate to an upgraded release.

Step 7 Click a software release number. Click the filename (*filename*AIR-CT5500-K9-1-7-0-0-FUS.aes). The following AES files are available for various controller platforms:

- AIR-CT5500-K9-1-7-0-0-FUS.aes
- AIR-CT5500-LDPE-1-7-0-0-FUS.aes
- AIR-CT7500-K9-1-7-0-0--FUS.aes
- AIR-WISM2-K9-1-7-0-0-FUS.aes

Step 8 Click **Download**.

Step 9 Read Cisco's End User Software License Agreement and then click **Agree**.

Step 10 Save the file to your hard drive.

Step 11 Copy the AES file (*filename* AIR-CT5500-K9-1-7-0-0-FUS.aes) to the default directory on your TFTP or FTP server.

Installing Field Upgrade Software

Step 1 Enter the following commands on the controller CLI:

a. **transfer download datatype code**

b. **transfer download serverip** *serverip*

c. **transfer download mode** {**tftp** | **ftp**}

d. **transfer download username** *user*

e. **transfer download password** *password*

f. **transfer download filename** *filename.aes*

g. **transfer download path /**

h. **transfer download start**

Step 2 Enter the following command to reboot the controller:

reset system

The system has unsaved changes.

```
Would you like to save them now? (y/N) y

Configuration Saved!

System will now restart!Restarting system.


WLCNG Boot Loader Version 1.0.16 (Built on Feb 28 2011 at 13:14:54 by cisco)

Board Revision 1.2 (SN: FCW1341L01F, Type: AIR-CT5508-K9) (G)


Verifying boot loader integrity... OK.


OCTEON CN5645-NSP pass 2.1, Core clock: 600 MHz, DDR clock: 330 MHz (660 Mhz data rate)

FPGA Revision 1.7

Env FW Revision 1.8

USB Console Revision 2.2

CPU Cores:  10

DRAM:  1024 MB

Flash: 32 MB

Clearing DRAM........ done

Network: octeth0', octeth1

  ' - Active interface
```

```
  E - Environment MAC address override
CF Bus 0 (IDE): OK
IDE device 0:
 - Model: STI Flash 8.0.0 Firm: 01/17/07 Ser#: STI1MN0509231104251
 - Type: Hard Disk
 - Capacity: 977.4 MB = 0.9 GB (2001888 x 512)
Press <ESC> now to access the Boot Menu...
Loading primary image (7.2.104.17)

  0%
  0%
  1%
  2%
  3%
  4%
  5%
   .
   .
 99%
 100%

6182569 bytes read
Launching...
init started: BusyBox v1.6.0 (2010-05-13 17:50:10 EDT) multi-call binary
starting pid 821, tty '': '/etc/init.d/rcS'
Field Upgrade Software
Bundles included in this upgrade:
- Bootloader
    - Field Recovery image
    - Offline Diagnostic image
    - FPGA image
    - Environment Controller (MCU) Image
    - USB Console image
****************************************************************
      * Please make sure POWER SUPPLY is always ON during this period. *
      * Lost POWER will completely kill this unit and not recoverable. *
      * There may be multiple reboot. Please let the program run.      *
      ****************************************************************
```

```
      Start soon ...
====================
Checking for Bootloader upgrade
Bootloader upgrade ...
Bootloader 1.0.16 is up to date.
====================
Checking for FPGA upgrade
FPGA upgrade ...
FPGA image is up to date
====================
Checking for MCU upgrade
Environment controller upgrade ...
Env image is up to date
====================
Checking for usbcon upgrade
USB upgrade ...
USB image is up to date
====================
Checking for Offline Diagnostic image upgrade
Offline Diagnostic upgrade ...
OFD image Current version WLCNG OFD 0.9.28 is up-to-date.
Answer "y" below will force upgrade to run again.

Upgrade will start in 30 sec, press (y) to start immediately else press any key to ABORT
!!.
Timeout, starting upgrade.

*****************************************************************
* Please make sure POWER SUPPLY is always ON during this period. *
*****************************************************************
Erasing Flash (estimated 24 seconds) ...
Writing to flash (estimated 111 seconds) ...
====================
Checking for Field recovery image upgrade
Field Recovery Image upgrade ...
Field recovery image Current version 7.0.112.21 is up-to-date.
Answer "y" below will force upgrade to run again.
```

```
Upgrade will start in 30 sec, press (y) to start immediately else press any key to ABORT
!!.

Timeout, starting upgrade.

*****************************************************************
* Please make sure POWER SUPPLY is always ON during this period. *
*****************************************************************
Erasing Flash (estimated 49 seconds) ...
Writing to flash (estimated 716 seconds) ...

All upgrades done. System reboot ...
Restarting system.

WLCNG Boot Loader Version 1.0.16 (Built on Feb 28 2011 at 13:14:54 by cisco)
Board Revision 1.2 (SN: FCW1341L01F, Type: AIR-CT5508-K9) (G)

Verifying boot loader integrity... OK.

OCTEON CN5645-NSP pass 2.1, Core clock: 600 MHz, DDR clock: 330 MHz (660 Mhz data rate)
FPGA Revision 1.7
Env FW Revision 1.8
USB Console Revision 2.2
CPU Cores:  10
DRAM:  1024 MB
Flash: 32 MB
Clearing DRAM........ done
Network: octeth0', octeth1
  ' - Active interface
  E - Environment MAC address override
CF Bus 0 (IDE): OK
IDE device 0:
 - Model: STI Flash 8.0.0 Firm: 01/17/07 Ser#: STI1MN0509231104251
 - Type: Hard Disk
 - Capacity: 977.4 MB = 0.9 GB (2001888 x 512)


Press <ESC> now to access the Boot Menu...
```

```
Loading primary image (7.0.230.0)


  0%
  0%
  1%
  2%
  3%
  4%
  5%
  .
  .
  .
 98%
 99%
100%

31613703 bytes read
Launching...
init started: BusyBox v1.6.0 (2010-05-13 17:50:10 EDT) multi-call binary
starting pid 821, tty '': '/etc/init.d/rcS'
type = block
dump-device = 254:4
disrupt
level = header
compress = none
Detecting Hardware ...
set smp_affinity for irq 48
003f
DP from CGE5.0 ...
tarting pid 1050, tty '/dev/ttyS0': '/usr/bin/gettyOrMwar'
Cryptographic library self-test....passed!

XML config selected
Validating XML configuration
octeon_device_init: found 1 DPs
readCPUConfigData: cardid 0x6070001
```

```
Reading 0 hosts from config
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Cisco AireOS Version 7.0.230.0
Firmware Version FPGA 1.7, Env 1.8, USB console 2.2
Initializing OS Services: ok
Initializing Serial Services: ok
Initializing Network Services: ok
Initializing Licensing Services: ok
Starting ARP Services: ok
Starting Trap Manager: ok
Starting Network Interface Management Services: ok
Starting System Services: ok
Starting FIPS Features: ok : Not enabled
Starting Fastpath Hardware Acceleration: ok
Starting Fastpath Console redirect : ok
Starting Fastpath DP Heartbeat : ok
Fastpath CPU00: Starting Fastpath Application. SDK-1.8.0, build 269. Flags-[DUTY CYCLE]
: ok
Fastpath CPU00: Initializing last packet received queue. Num of cores(10)
Fastpath CPU00: Init MBUF size: 1856, Subsequent MBUF size: 2040
Fastpath CPU00: Core 0 Initialization and FIPS self-test: ok
Fastpath CPU02: Core 2 Initialization and FIPS self-test: ok
Fastpath CPU04: Core 4 Initialization and FIPS self-test: ok
Fastpath CPU06: Core 6 Initialization and FIPS self-test: ok
Fastpath CPU07: Core 7 Initialization and FIPS self-test: ok
Fastpath CPU09: Core 9 Initialization and FIPS self-test: ok
Fastpath CPU01: Core 1 Initialization and FIPS self-test: ok
Fastpath CPU00: Initializing Timer...
Fastpath CPU03: Core 3 Initialization and FIPS self-test: ok
Fastpath CPU05: Core 5 Initialization and FIPS self-test: ok
Fastpath CPU08: Core 8 Initialization and FIPS self-test: ok
Fastpath CPU00: Initializing Timer...done.
Fastpath CPU04: Received instruction to get link status
Starting Switching Services: ok
Starting QoS Services: ok
Starting Policy Manager: ok
```

```
Starting Data Transport Link Layer: ok
Starting Access Control List Services: ok
Starting System Interfaces: ok
Starting Client Troubleshooting Service: ok
Starting Management Frame Protection: ok
Starting Certificate Database: ok
Starting VPN Services: ok
Starting Licensing Services: ok
Starting LWAPP: ok
Starting CAPWAP: ok
Starting LOCP: ok
Starting Security Services: ok
Starting Policy Manager: ok
Starting Authentication Engine: ok
Starting Mobility Management: ok
Starting Virtual AP Services: ok
Starting AireWave Director: ok
Starting Network Time Services: ok
Starting Cisco Discovery Protocol: ok
Starting Broadcast Services: ok
Starting Logging Services: Reading 0 hosts from config
ok
Starting DHCP Server: ok
Starting IDS Signature Manager: ok
Starting RFID Tag Tracking: ok
Starting Power Supply and Fan Status Monitoring Service: ok
Starting Mesh Services:  ok
Starting TSM: ok
Starting CIDS Services: ok
Starting Ethernet-over-IP: ok
Starting DTLS server:  enabled in CAPWAP
Starting CleanAir: ok
Starting WIPS: ok
Starting SSHPM LSC PROV LIST: ok
Starting RRC Services: ok
Starting FMC HS: ok
Starting Management Services:
   Web Server: ok
```

```
CLI: ok

Secure Web: ok

License Agent: ok
```

Hardware Supported

The FUS image is applicable only to the following controller platforms for this release:

- Cisco 5500 Series Wireless LAN Controller
- Cisco Flex 7500 Controller
- Cisco Wireless Services Module 2 (WiSM2)

Upgrading FUS image using the GUI

Step 1 Upload your controller configuration files to a server to back them up.

Step 2 Get the controller software image as defined in Downloading Field Upgrade Software, page 3, and follow these steps:

a. Choose **Wireless > Wireless LAN Controller**. The following options are available: Integrated Controllers and Controller Modules and Standalone Controllers.

b. Depending on your controller platform, click one of the above options.

c. Click the controller model number or name. The Download Software page is displayed.

d. Click a controller software release. The software releases are labeled as follows to help you determine which release to download:

- **Early Deployment (ED)**—These software releases provide new features, new hardware platform support, and bug fixes.
- **Maintenance Deployment (MD)**—These software releases provide bug fixes and ongoing software maintenance.
- **Deferred (DF)**—These software releases have been deferred. We recommend that you migrate to an upgraded release.

e. Choose a software release number.

f. Click the filename (filename.AIR-CT5500-K9-1-7-0-0-FUS.aes).

g. Click **Download**.

h. Read Cisco's End User Software License Agreement and then click **Agree**.

i. Save the file to your hard drive.

j. Repeat steps a through k to download the remaining file.

Step 3 Copy the controller software image (filename.aes) to the default directory on your TFTP or FTP server.

Step 4 (Optional) Disable the 802.11 networks.

Note For busy networks, controllers on high utilization, or small controller platforms, we recommend that you disable the 802.11 networks as a precautionary measure.

Step 5 Disable any WLANs on the controller.

Step 6 Choose **Commands > Download File** to open the Download File to Controller page.

Step 7 From the **File Type** drop-down list, choose **Code**.

Step 8 From the **Transfer Mode** drop-down list, choose from the following options:

- TFTP
- FTP

Step 9 In the **IP Address** text box, enter the IP address of the server.

If you are using a TFTP server, the default values of 10 retries and 6 seconds for the **Maximum Retries** and **Timeout** text boxes should work correctly without any adjustment. However, you can change these values.

Step 10 If you are using a TFTP server, the default values of 10 retries for the Maximum Retries text field, and 6 seconds for the Timeout text field should work correctly without any adjustment. However, you can change these values if desired. To do so, enter the maximum number of times that the TFTP server attempts to download the software in the **Maximum Retries** text box and the amount of time (in seconds) that the TFTP server attempts to download the software in the **Timeout** text box.

Step 11 In the **File Path** text box, enter the directory path of the software.

Step 12 In the **File Name** text box, enter the name of the controller software file (filenameAIR-CT5500-K9-1-7-0-0-FUS.aes).

Step 13 If you are using an FTP server, follow these steps:

- In the **Server Login** Username text box, enter the username to log into the FTP server.
- In the **Server Login** Password text box, enter the password to log into the FTP server.
- In the **Server Port Number** text box, enter the port number on the FTP server through which the download occurs. The default value is 21.

Step 14 Click **Download** to download the software to the controller. A message appears indicating the status of the download.

Step 15 After the download is complete, click **Reboot**.

Step 16 If prompted to save your changes, click **Save and Reboot**.

Step 17 Click **OK** to confirm.

Step 18 After the controller reboots, repeat step 6 to step 17 to install the remaining file.

Step 19 Reenable the WLANs.

Step 20 For Cisco WiSM2, reenable the controller port channel on the Catalyst switch.

Step 21 If you have disabled the 802.11 networks in Step 4, reenable them.

Step 22 To verify the controller software version, choose **Monitor** on the controller GUI and see **Software Version** in the Controller Summary area.

Caveats

The following sections lists Open Caveats and Resolved Caveats for Cisco controllers and lightweight access points for version 1.7.0.0-FUS. For your convenience in locating caveats in Cisco's Bug Toolkit, the caveat titles listed in this section are drawn directly from the Bug Toolkit database. These caveat titles are not intended to be read as complete sentences because the title field length is limited. In the caveat titles, some truncation of wording or punctuation might be necessary to provide the most complete and concise description. The only modifications made to these titles are as follows:

- Commands are in **boldface** type.
- Product names and acronyms might be standardized.
- Spelling errors and typos might be corrected.

Note If you are a registered cisco.com user, view Bug Toolkit on cisco.com at the following website:

http://tools.cisco.com/Support/BugToolKit/

To become a registered cisco.com user, go to the following website:

http://tools.cisco.com/RPF/register/register.do

Open Caveats

Table 2 lists the open caveats in field upgrade software release 1.7.0.0-FUS.

Table 2 Open Caveats

ID Number	Caveat Title
CSCtx65539	FPGA upgrade fails to upgrade the FPGA image on a Cisco Wireless Service Module 2 (WiSM2). **Symptom**: When upgrading a WiSM2 with the Field Upgrade Software, the FPGA component fails to upgrade. **Conditions**: This occurs when users upgrade WiSM2 with the FUS image. **Workaround**: The FPGA component does not require an upgrade for the WiSM2 platform.

Resolved Caveats

Table 3 lists caveats resolved in field upgrade software release 1.7.0.0-FUS.

Table 3 Resolved Caveats

ID Number	Caveat Title
CSCtr39523	Cisco 5508 Controller sporadically reboots due to lost heartbeat to EnvCnt.
CSCtr07261	Mini USB Console Firmware Upgrade.
CSCty45030	Need automated loading of FUS image.
CSCtq77259	Cisco 7500 Series Wireless Controller Firmware Upgrade.

If You Need More Information

If you need information about a specific caveat that does not appear in these release notes, you can use the Cisco Bug Toolkit to find caveats of any severity. Click this URL to browse to the Bug Toolkit:

http://tools.cisco.com/Support/BugToolKit/

(If you request a defect that cannot be displayed, the defect number might not exist, the defect might not yet have a customer-visible description, or the defect might be marked Cisco Confidential.)

Troubleshooting

For the most up-to-date, detailed troubleshooting information, see the Cisco TAC website at

http://www.cisco.com/en/US/support/index.html

Click **Product Support > Wireless**. Then choose your product and **Troubleshooting** to find information on the problem you are experiencing.

Related Documentation

For additional information on the Cisco controllers and lightweight access points, see these documents:

- The quick start guide or installation guide for your particular controller or access point
- *Cisco Wireless LAN Controller Configuration Guide*
- *Cisco Wireless LAN Controller Command Reference*
- *Cisco Prime Network Control System Configuration Guide*
- *Cisco Prime Network Control System Command Reference*

You can access these documents from this link:

http://www.cisco.com/cisco/web/support/index.html

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see *What's New in Cisco Product Documentation* at: http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html.

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This document is to be used in conjunction with the documents listed in the "Related Documentation" section.