



Release Notes for Cisco Wireless Controller Field Upgrade Software, Release 1.10.0.0

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Introduction

Cisco Wireless Controller (WLC) 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, emergency image, FPGA/MCU, and other firmware to their latest respective versions.

If your Emergency Image Version is prior to 8.1, we recommend that you upgrade to Cisco Wireless Controller Field Upgrade Software, Release 1.10.0.0, for the following platforms:

- Cisco Flex 7500 Series Wireless Controllers
- Cisco 8500 Series Wireless Controllers
- Cisco Virtual Wireless Controller



Note

Cisco Wireless Controller Field Upgrade Software, Release 1.10.0.0, is not required for Cisco 2500 Series, 5500 Series Wireless Controllers, and Cisco WiSM2.



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**Note**

You can check the Emergency Image Version by entering the **show sysinfo** command on the WLC CLI.

Following are the reasons why you must install Cisco Wireless Controller Field Upgrade Software, Release 1.10.0.0:

- The Emergency Image Version 8.1.102.0 has kdump facility enabled to handle kernel panic dump collection. If you do not upgrade to Emergency Image Version 8.1.102.0, any kdump function may cause the Cisco WLC platform to not work as expected on a kernel panic or watchdog failure. The following messages are displayed:

```
INIT: Sending processes the KILL signal
INIT: Entering runlevel: 3
INIT: cannot execute "/bin/gettyOrMwar"
INIT: cannot execute "/bin/gettyOrMwar"
INIT: cannot execute "/bin/gettyOrMwar"
```

- If the Emergency Image Version is prior to 8.0, the following error message is displayed during bootup:

```
?failure to setup the dump capture kernel?
```

The Cisco WLC disables the kdump functionality and continues.

Upgrading to Cisco Wireless Controller Field Upgrade Software, Release 1.10.0.0 removes this error message.

Cisco WLC Platforms and Upgraded Components

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

Table 1 Cisco WLC Platforms and Upgraded Components

Cisco WLC Platform	Upgraded Components
Cisco Flex 7500 Series Wireless Controllers	<ul style="list-style-type: none"> • Emergency image is upgraded to 8.1.102.0 • Bootloader is upgraded to 8.1.102.0
Cisco 8500 Series Wireless Controllers	<ul style="list-style-type: none"> • Emergency image is upgraded to 8.1.102.0 • Bootloader is upgraded to 8.1.102.0
Cisco Virtual Wireless Controller	<ul style="list-style-type: none"> • Emergency image is upgraded to 8.1.102.0 • Bootloader is upgraded to 8.1.102.0

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 WLCs 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 that you have console access so that you can monitor the progress of the process.
- The FUS upgrade process reboots the Cisco WLC several times, and reboot the default runtime image. The upgrade process takes approximately 30 minutes.

Supported Hardware

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

- Cisco Flex 7500 Series Wireless Controller
- Cisco 8500 Series Wireless Controller
- Cisco Virtual Wireless Controller

Downloading Field Upgrade Software

-
- Step 1** Go to the Cisco Software Center at this URL: <https://software.cisco.com/download/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 (for example, AIR-CT8500-K9-1-10-0-0-FUS.aes). The following AES files are available for various controller platforms:
- AIR-CT7500-K9-1-10-0-0-FUS.aes
 - AIR-CT8500-K9-1-10-0-0-FUS.aes
 - AIR-CTVM-K9-1-10-0-0-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 (for example AIR-CT8500-K9-1-10-0-0-FUS.aes) to the default directory on your TFTP or FTP server.

Installing Field Upgrade Software (CLI)

- Step 1** Enter the following commands on the Cisco WLC 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 Cisco WLC:

reset system

Information similar to the following is displayed; this is a sample output from a Cisco 8500 Series WLC:

```
Booting Primary Image...
Press <ESC> now for additional boot options...
  Booting 'Primary image'

Detecting hardware . . . . 3
INIT: version 2.88 booting
Configuring network interfaces... done.
Setting up the kernel dump handler..
BzImage is not rINIT: Entering runlevel: 3
Detecting Hardware ...
FUS Upgrade....

*****
*
*           FIELD UPGRADE SOFTWARE           *
*
* Please make sure POWER SUPPLY is always ON during this period. *
*
* Any loss of POWER will completely kill this unit and make it   *
*
* unrecoverable.                                               *
*
*****

Files included in this upgrade package:

* ER Image *
* Bootloader *
head: invalid option -- '1'
BusyBox v1.20.2 (2014-01-25 04:41:54 EST) multi-call binary.
```

Usage: head [OPTIONS] [FILE]...

* IBM/LSI RAID Firmware *

Upgrade will start in 60 seconds, press (y) to start immediately or any other key to
ABORT!! y
Updated ER image from 7.6.101.0 to 8.1.102.0

Warning: Updating the Bootloader will cause system to restart!!

Upgrade of Bootloader will start in 60 seconds, press (y) to start immediately or any key
to ABORT!! y
Updated Boot loader from ttyS0,9600 to 8.1.102.0

head: invalid option -- '1'
BusyBox v1.20.2 (2014-01-25 04:41:54 EST) multi-call binary.

Usage: head [OPTIONS] [FILE]...

Raid firmware (ver 20.10.1-0036) is already up to date

[28.426262] Restarting system.
Connecting Boot Devices and Adapters. Platform
Initalization CompleteSystem x3550 M3

UEFI Build Ver: 1.11 IMM Build Ver: 1.25 Diagnostics Build Ver: 9.272 CPU Packages
Available at 5.86GT/s Link Speed16384MB Memory Available at 1067MHz in Independent Channel
ModePlatform Initalization CompleteSystem x3550 M3

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UEFI Build Ver: 1.11 IMM Build Ver: 1.25 Diagnostics Build Ver: 9.272 CPU Packages
 Available at 5.86GT/s Link Speed16384MB Memory Available at 1067MHz in Independent Channel
 ModeConnecting Boot Devices and Adapters.....
 Start boot option<F1> Setup<F2> Diagnostics<F12> Select Boot DeviceBoot Failed. CD/DVD Rom
 Boot Failed. Floppy Disk
 Pleasewait,initializinglegacyusbdevices...Done

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 Version4.24.00(BuildMarch03,2011)
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HA-0 (Bus1Dev0) ServeRAIDM1015SAS/SATAController

0JBOD(s) foundonthehostadapter
 0JBOD(s) handledbyBIOS

```
1VirtualDrive(s)foundonthehostadapter.
```

```
1VirtualDrive(s)handledbyBIOS
```

```
Press<Ctrl><H>forWebBIOSorpress<Ctrl><Y>forPrebootCLI
```

```
Cisco Bootloader (Version 8.1.102.0)
```

```
.o88b. d888888b .d8888. .o88b. .d88b.
d8P Y8 `88' 88' YP d8P Y8 .8P Y8.
8P      88  `8bo. 8P      88  88
8b      88  `Y8b. 8b      88  88
Y8b d8  .88.  db  8D Y8b d8 `8b d8'
`Y88P' Y888888P `8888Y' `Y88P' `Y88P'
```

```
Booting Primary Image...
```

```
Press <ESC> now for additional boot options...
```

```
Booting 'Primary image'
```

```
Detecting hardware . . . . 3
```

```
INIT: version 2.88 booting
```

```
Configuring network interfaces... done.
```

```
Setting up the kernel dump handler..
```

```
BzImage is not rINIT: Entering runlevel: 3
```

```
Detecting Hardware ...
```

```
Loading host drivers..
```

```
Loading host NIC drivers..
```

```
Starting Hardware Acceleration...
```

```
Cryptographic library self-test....Testing SHA1 Short Message 1
```

```
Testing SHA256 Short Message 1
```

```
Testing SHA1 Short Message 1
```

```
SHA1 POST PASSED
```

```
passed!
```

```
XML config selected
```

```
Validating XML configuration
```

```
octeon_device_init: found 1 DPs
```

```
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```

```
Software Copyright Cisco Systems, Inc. All rights reserved.
```

```
Cisco AireOS Version 8.1.102.0
```

```
Initializing OS Services: ok
```

```
Initializing Serial Services: ok
```

```
Initializing Network Services: ok
```

```
Initializing Licensing Services: ok
```

```
License daemon start initialization.....
```

```
License daemon running.....
```

```
Starting Statistics Service: ok
```

```
Starting ARP Services: ok
```

```
Starting Trap Manager: ok
```

```
Starting Network Interface Management Services: ok
```

```
Starting System Services: == simStartTasks
```

```
ok
```

```
Starting FIPS Features: ok : Not enabled
```

```
Starting Fastpath Hardware Acceleration: ok
```

```
ok
```

```
Starting Fastpath DP Heartbeat : ok
```

```
Fastpath CPU0.00: Starting Fastpath Application. SDK-3.1.0, build 549. Flags-[DUTY CYCLE]
```

```
: ok
```

```
Fastpath CPU0.00: Initializing last packet received queue. Num of cores(12)
Fastpath CPU0.00: Init MBUF size: 1856, Subsequent MBUF size: 2040
Fastpath CPU0.00: Core 0 Initialization and FIPS self-test: ok
Fastpath CPU0.00: 12 Cores are being initialized
Fastpath CPU0.00: Initializing Timer...
Fastpath CPU0.00: Initializing Timer...done.
Fastpath CPU0.00: Initializing Timer...
Fastpath CPU0.00: Initializing NBAR AGING Timer...done.
Fastpath CPU0.01: Core 1 Initialization and FIPS self-test: ok
Fastpath CPU0.02: Core 2 Initialization and FIPS self-test: ok
Fastpath CPU0.03: Core 3 Initialization and FIPS self-test: ok
Fastpath CPU0.04: Core 4 Initialization and FIPS self-test: ok
Fastpath CPU0.05: Core 5 Initialization and FIPS self-test: ok
Fastpath CPU0.06: Core 6 Initialization and FIPS self-test: ok
Fastpath CPU0.07: Core 7 Initialization and FIPS self-test: ok
Fastpath CPU0.08: Core 8 Initialization and FIPS self-test: ok
Fastpath CPU0.09: Core 9 Initialization and FIPS self-test: ok
Fastpath CPU0.10: Core 10 Initialization and FIPS self-test: ok
Fastpath CPU0.11: Core 11 Initialization and FIPS self-test: ok
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 Certificate Database: ok
Starting VPN Services: ok
Starting Management Frame Protection: ok
Starting DNS Services: ok
HBL initialization is successful
Starting Licensing Services: ok
Starting Redundancy: Starting Peer Search Timer of 120 seconds

Initiate Role Negotiation Message to peer

Found the Peer. Starting Role Determination...
ok

Start rmgrPingTaskStarting 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 Capwap Ping Component: ok
Starting AVC Services: ok
Starting AVC Flex Services: 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: ok
Starting DHCP Server: ok
Starting IDS Signature Manager: ok
Starting RFID Tag Tracking: ok
Starting RF Profiles: ok
Starting Environment Status Monitoring Service: ok
Starting RAID Volume 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 SXP Services: ok
Starting Alarm Services: ok
Starting FMC HS: ok
Starting IPv6 Services: ok
Starting Config Sync Manager : ok
Starting Hotspot Services: ok
Starting PMIP Services: ok
Starting Tunnel Services New: ok
Starting Portal Server Services: ok
Starting mDNS Services: ok
Starting Management Services:
  Web Server:  CLI:  Secure Web: ok

```

```
(8500-1)
```

```
Enter User Name (or 'Recover-Config' this one-time only to reset configuration to factory
defaults)
```

```
User: admin
Password:*****
(8500-1) >
```

Upgrading FUS Image

-
- 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 (for example, AIR-CT8500-K9-1-10-0-0-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 (for example, AIR-CT8500-K9-1-10-0-0-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 To verify the controller software version, choose **Monitor** on the controller GUI and see **Software Version** in the Controller Summary area.

Service and Support

Troubleshooting

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

<http://www.cisco.com/c/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/c/en/us/support/index.html>

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, using the Cisco Bug Search Tool (BST), submitting a service request, and gathering additional information, see *What's New in Cisco Product Documentation* at: <http://www.cisco.com/c/en/us/td/docs/general/whatsnew/whatsnew.html>

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