Release Notes for Cisco 2700 and 2710 Location Appliances for Software Release 6.0.75.0

Last Revised: June 11, 2009

These release notes describe features, enhancements, and caveats for software release 6.0.75.0 for Cisco Location Appliances. This release of location appliance software supports both Cisco 2700 and 2710 location appliances.

Note Location appliances are identified as *location servers* in Cisco WCS and in supporting documentation.

Note For details on compatibility with Cisco Wireless LAN Controllers and Cisco Wireless Control Systems (WCS), refer to the "System Requirements" section on page 2 prior to installing this software.

Note Refer to the online version of the *Cisco 2700 Series Location Appliance Getting Started Guide* for details on the physical installation and initial configuration of the location appliance at: http://www.cisco.com/en/US/products/ps6386/prod_installation_guides_list.html

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Introduction

Location appliances compute, collect, and store historical location data using Cisco wireless LAN controllers and access points to track the physical location of wireless devices. The collected location data can be viewed in GUI format in Cisco WCS.

System Requirements

You can install this software release on any 2700 or 2710 location appliance.

Table 1 summarizes the minimum software release requirements for the Cisco WCS and controller to interoperate with the release 6.0 of the location appliance.

Table 1 Minimum Software Requirements

System	Minimum Software Release
Controller	6.0.182.0, 5.2.157.0 and 5.2.178.0, 5.1.151.0 and 5.1.163.0 4.2.130 (or later). **Note** Controller release 5.0.x is not compatible with location appliance release 5.1.x.
Cisco WCS	6.0.132.0 (or later).
Cisco WCS Navigator	Release 1.5.132.0 or later.

Note The 2700 Series Location Appliance does not support 3500 series access points.

Backwards Compatibility of Location Appliance Software

Location appliance software is backwards compatible with the previous two location appliance releases. Therefore, you can only upgrade two releases forward. For example, you can directly upgrade from release 4.0 and 5.1 to 6.0 but you cannot directly upgrade to release 6.0 from releases earlier than 4.0.

Upgrading to this Software Release

For instructions for using either Cisco WCS or for manually downloading this software to location appliances, refer to the "Updating Location Appliance Software" section in the "Installation and Configuration" chapter of the *Cisco 2700 Series Installation and Configuration Guide* (78-17180-03 and later). You can find this document at:

http://www.cisco.com/en/US/products/ps6386/prod_installation_guides_list.html

Backup of Software Cannot be Restored on Earlier Releases

A backup of location appliance software release 6.0 cannot be restored on any location appliance running an earlier software release. Before you upgrade a location appliance to 6.0, Cisco recommends that you create a backup of the earlier release and archive it. This enables you to convert an upgraded system to an earlier release, if necessary.

Location Appliance Image is Compressed

If you download the server image *.gz file using Cisco WCS, the location appliance automatically decompresses (unzips) it, and you can proceed with the installation as before.

If you manually download the compressed *.gz file using FTP, you must decompress the files before running the installer. These files are compressed under the LINUX operating system and must be decompressed using the *gunzip* utility program. The unzip method you use is defined by the filename you are trying to unzip.

To make the bin file executable, use the following command:

chmod +x filename.bin

Updated Location Appliance Software Version Shown in Cisco WCS after Polling

After a software update, the new location appliance software version does not immediately appear in location appliance queries on Cisco WCS. Up to five minutes is required for the new version to appear. Cisco WCS, by default, queries the location appliance every five minutes for status.

Important Notes

This section describes important information about new features and operational notes for software release 6.0.75.0 for location appliances.

Operational Notes

The following operational notes are relevant to this release.

Automatic Installation Script for Initial Setup

An automatic setup wizard is available to step you through the initial setup of the location appliance.

An example of the complete automatic setup script (and manual setup process) is provided in the *Cisco 2700 Series Getting Started Guide*. You can find this document online at:

http://www.cisco.com/en/US/products/ps6386/prod_installation_guides_list.html

Mandatory Default Root Password Change

You must change the default root password during initial configuration of the location appliance to ensure optimum network security.

- You are prompted to change the password during the setup script.

- You can also change the password using the Linux command, **passwd**.

Synchronization Required When Upgrading to Release 6.0 or Importing CAD Floor Images

When upgrading to release 6.0 from release 5.x (and earlier), you must synchronize after the software upgrade and also when CAD generated floor images are imported into Cisco WCS.

Controller and Associated Location Appliances Must be Mapped to the Same NTP and WCS Server

Communications between the location appliance, Cisco WCS, and the controller are in universal time code (UTC). Configuring NTP on each system provides devices with the UTC time. An NTP server is required to automatically synchronize time between the controller, Cisco WCS and the location appliance.

The location appliance and its associated controllers must be mapped to the same NTP server and the same Cisco WCS server.

Local time zones can be configured on a location appliance to assist network operations center (NOC) personnel in locating events within logs.

Note You can configure NTP server settings during the automatic installation script. Refer to the *Cisco 2700 Series Location Appliance Getting Started Guide* for details on the automatic installation script. You can find this document online at:
http://www.cisco.com/en/US/products/ps6386/prod_installation_guides_list.html

Networks with Large Access Point Deployments Might Experience Slower Location Updates

In networks with a large number of access points (approximately 2000 or more), location appliances might experience a slow down in location calculation and heatmap updates for clients, tags, and access points (CSCsk18810).

Large Burst of Notifications Might Cause Drop of Notifications

A location appliance might fail to send notifications if it receives a large burst of notifications. The dropped notification count appears on the Services > Context Aware Notifications window.

Refer to CSCsu43201 in the Open Caveats section for workaround.

If a release of AeroScout MobileView *earlier than 4.1* is in use, incorrect responses are sent to those northbound notifications received from the location appliance. Northbound notifications are then resent by the location appliance, overloading the notification queue and resulting in reports of dropped notifications (CSCsx56618).

Configuration Changes for Greater Location Accuracy

In some RF environments, where location accuracy is around 60 to 70%, or where incorrect client or tag floor location map placements occur, you might need to modify the moment RSSI thresholds in the *aes-config.xml* file in the *opt/locserver/conf/* directory of the location server (CSCsw17583).

The RSSI parameters that might need modification are:

- locp-individual-rssi-change-threshold

- locp-aggregated-rssi-change-threshold
- locp-many-new-rssi-threshold-in-percent
- locp-many-missing-rssi-threshold-in-percent

Floor Change or Minimum Distance Required for Location Transitions to Post to History Log

When history logging is enabled for any or all elements (client stations, asset tags, and rogue clients and rogue access points), a location transition for an element is only posted if it changes floors or the element's new location is at least 30 feet or 10 meters from its original location.

Cisco Path: Services > Mobility Services > Device Name > Context Aware Service > Administration > History Parameters.

Logs can be viewed at Services > Mobility Services > Device Name > Systems > Log.

Location History Timestamps Match Browser's Location

The Cisco WCS timestamp is based on the browser's location and not on the location appliance settings. Changing the time zone of the Cisco WCS or on the location appliance does not change the timestamp for the location history.

PDAs with Limited Probe Requests Might Affect Location

Many PDAs do not continuously send out probe requests after initial association to the Cisco Unified Wireless Network (CUWN). Therefore, calculating the location accuracy of such PDAs using RSSI readings might not always be optimal.

Mandatory Setting Required on Intel 802.11n and 802.11 b/g/n Client Cards for Accurate Calibration

The Cisco CX RM option within Intel's Enterprise Security Profile must be enabled to ensure adequate calibration data points are collected for Intel 802.11n and 802.11 b/g/n client cards.

You can use the Intel Client Software PROSET package to enable the Cisco CX RM option in the Enterprise Security Profile (CSCsl40623).

Non-Cisco Compatible Extensions Tags Not Supported

The location appliance does not support non-Cisco CX Wi-Fi tags. Additionally, these non-compliant tags are not used in location calculations or shown on Cisco WCS maps.

Cisco Compatible Extensions, Version 1 Tags Required at a Minimum

Only Cisco CX version 1 tags (or later) are used in location calculations and mapped in Cisco WCS.

Monitoring Information Varies for Clients and Tags

On the Monitor > Clients page (when Location Debug is enabled), you can view information on the last heard access point and its corresponding RSSI reading. This information is not available on the Monitor > Tags page.

Calibration Models and Data Apply Only to Clients

Calibration models and data apply only to clients. Calibration for tags is done using the AeroScout System Manager.

Refer to Chapter 7, "Context-Aware Planning and Verification" in the *Cisco Location Appliance Configuration Guide, Release 6.0* for more details on client calibration.

Refer to the *AeroScout Context-Aware Engine for Tags, for Cisco Mobility Services Engine User's Guide* at the following link:

http://support.aeroscout.com

Advanced Location Parameters Apply Only to Clients

Settings for advanced location parameters related to RSSI, chokepoint usage, location smoothing, and assignment of outside walls on floors, are not applicable to tags.

Refer to the "Editing Advanced Location Parameters" section in Chapter 7 of the Cisco Context-Aware Software Configuration Guide, Release 6.0.

Cisco WCS Path: Services > Mobility Services > Device Name > Context Aware Service > Advanced > Location Parameters.

WCS Screen Changes

- *Services* replaces *Mobility* in the navigation bar of Cisco WCS.

New Feature Support

There are no new features supported in location appliance release 6.0.75.0.

Caveats

This section lists open and resolved caveats in location appliance release 6.0.75.0.

Open Caveats

The following caveats are open (unresolved) in release 6.0.75.0:

- CSCsk18810—In networks with a large number of access points (approximately 2000 or more), location appliances might experience a slow down in location calculation and heatmap updates for clients, tags, and access points.

  Workaround: None.

- CSCsk74074—In some cases, when you attempt to synchronize all location appliances and one or more location appliances that are added to Cisco WCS are unreachable, then synchronization and synchronization history windows will open very slowly (Cisco WCS Path: Services > Mobility Services > Device and then select Synchronize Servers from drop-down menu).

  Workaround: To restore the normal loading time for the synchronization and synchronization history windows, remove the unreachable location appliances from Cisco WCS.

From the Services > Mobility Services window, check the check box next to each unreachable location appliance and then select Delete Services from the drop-down menu. Click **Go**.

- CSCsl40623—Fewer data points are collected with Intel 802.11n and 802.11 b/g/n client cards during calibration when the Cisco Compatible Client Extension (CX) RM option within the Enterprise Security Profile is not enabled.

  Workaround: Use the Intel Client Software PROSET package to ensure that the Enterprise Security Profile is selected and that the Cisco Compatible CX RM option in this profile is enabled.

- CSCsr41614—WCS requires that MAC addresses be entered in one of the following formats (see related caveat CSCsy85829):

  ```
  a1:b2:c3:d4:e5:f6 (lowercase)
  A1:B2:C3:D4:E5:F6 (uppercase)
  ```

  Workaround: None.

- CSCsu43201—A location appliance fails to send notifications if it receives a large burst of notifications. The dropped notification count appears on the Services > Context Aware Notifications window. When notifications drop, the following message might be seen in the MSE log:

  ```
  2/05/09 16:38:18 TRACE[async] [59] DROP MSG: com.aes.datamodel.track.AesDestDefn@4
  <NorthboundNotificationEvent>...</NorthboundNotificationEvent> , Current queue size =
  500
  ```

  A burst of events might occur at startup when the location appliance retrieves elements (clients, tags, access points) from the controller all at once and generates events for each of these retrievals (if applicable). It might also occur when the location appliance is tracking tags which are beaconing in the order of seconds. Tags beacon at a constant rate when stationary but might beacon more often when moving. If the tag traffic is very high, this too causes a burst in notifications. The condition is more likely to occur when Northbound Notifications are enabled for tags (Services > Mobility Services > Device Name > Context Aware Service > Advanced > Notification Parameters).

  Workaround: Do one or more of the following steps to ensure all notifications are sent:

  1) Disable notifications at startup and enable after startup is complete.

  2) Ensure that the event listener is never down.

  3) If using *AeroScout MobileView*, verify that version 4.1 or later is installed.

  4) Increase the size of the queue limit at the Services > Mobility Services Engine > Device Name > Context Aware Service > Advanced > Notification Parameters window. You can increase this to 10,000 for the location appliance (and 18,000 for the mobility services engine).

  5) Ensure tags are beaconing in the order of minutes, not seconds. Even in cases of movement, a tag should beacon no more frequently than 30 seconds.

- CSCsv34781—A controller that is synchronized to a location appliance with one system name cannot later be synchronized to the same location appliance with a different system name.

  Workaround: Unassign and the reassign the controller.

- CSCsx44787—When a controller is operating with release 4.1 or earlier and is communicating with controllers installed with release 4.2 or later and a location server or mobility services engine (supported in release 5.1 and later) is in the network, clients might bounce between association and disassociation states. Additionally, location calculations might stop.

  Workaround: Upgrade controllers to release 4.2 or later.

- CSCsx57710—The database is mistakenly deleted during the software uninstall process if you select *Option 2-No* when prompted with the "Do you want to remove the database?" question.

  Workaround: None.

- CSCsy27746—In rare circumstances, duplicate ARPs are generated every five seconds for the IP address,192.168.0.1.

  Workaround: None.

- CSCsz24853—Searching for a location appliance or mobility services engine (by name, IP address or MAC address) using the Cisco WCS Navigator always lists *location server* as the Item Type in the search results even when results for a mobility services engine are returned. Search results are found by clicking the link under the Items Matched column.

  Workaround: None.

- CSCsz44105—When the automatic install script is running during initial setup for the location appliance, an option to skip the root password is listed. This is an error. You are not allowed to skip this step and the skip option should not be seen. Entering an *S* to skip this step is ignored.

  Example display:

  ```
  Configure root password? (Y)es/(S)kip/(U)se default [Yes]: s
  Changing password for user root.
  You can now choose the new password.
  ```

  Workaround: None.

- CSCsz44750—When the telemetry option is enabled for a tag search, context-aware notifications are not updated.

  Workaround: Disable the telemetry option during tag searches and stop and then start the location appliance to restart context-aware notifications.

  To manually stop the location appliance, login as root and enter:

  /etc/init.d/locserverd stop

  To start the location appliance, enter:

  /etc/init.d/locserverd start

- CSCsz48609—The MAC address format used in the wired client search field is case sensitive. Additionally, if a space is added in front of the MAC address, the search fails. Wired client searches are done at the Service > Mobility Services > Device Name > Context Aware Service > Wired > Wired Clients window.

  Workaround: Enter the MAC address in lowercase (xx:xx:xx:xx:xx:xx) in the wired clients search field and do not insert any blank spaces.

- CSCsz54353—When a client is associated to a local controller, its IP address does not appear in the Controller Name column on the Monitor > Clients window when the option *Clients detected by MSEs* is selected from the Show drop-down menu.

  Workaround: Click Client User Name to view the Controller IP address on the Clients Details window.

- CSCsz78329—Online help is not reachable from the Help menu on the Tools > Location Accuracy Tool > *On Demand Accuracy Test* window and the Tools> Location Accuracy Tool > *Scheduled Accuracy Test* window.

  Workaround: Click Help > Online Help at the Tools > Location Accuracy Tool window.

Resolved Caveats

The following caveats are resolved in release 6.0.75.0.

- CSCsk17031—The history page loaded slowly when you queried the location history of a tag or client. Workaround was to increase the interval between historical readings of client, tags, and rogue clients and access points. You could also prune the data more frequently (Services > Mobility Services > Device Name > Context Aware Service > Administration > History Parameters).
- CSCsk18826—Cisco WCS could experience slower refresh and rendering times when managing large controller networks (200 or more) because of increased page synchronization requirements. Additionally, the CPU use for the web browser increased substantially and the browser could be unresponsive for a short period of time.
- CSCsm03250—When you downloaded logs from a location appliance a copy of the its log files was also written to the WCS logs directory. By design, the latest events for a location appliance are always resident in each location appliance's logs and are meant to be retrieved from each location appliance (Services > Mobility Services > Device Name > Logs > Download Logs). However, when users reviewed the WCS logs, they often referred to location appliance events that often were outdated. To prevent confusion to the user, location appliance logs (lbs) were removed from the wcs/logs directory.
- CSCsr29356—In some circumstances, access points from different, non-overlapping coverage regions each reported a location for the same element (such as a client, tag or rogue client). This disparate location reporting resulted in incorrect location calculations for the element.
- CSCsr52241—WCS sometimes generates unnecessary location server log messages similar to this one:

```
7/20/08 18:20:32.122 ERROR[general] [15] Wrong or missing resource type for
managedobj / transportSMTPForm.mailType.enum.0
```

- CSCsu39828—If a client is associated to an infrastructure SSID and then moved to a rogue access point using a rogue SSID, the WCS map displays the same client twice—as an infrastructure client and a rogue client. When the interface is turned off, the WCS correctly removes the rogue, but it remains on the WCS map as an infrastructure client.
- CSCsu68600—In some cases, the refresh rate for client location history (when the play function is operating) would take longer to refresh than the default rate of 2 seconds. This generally occurred when the client location history log was large (approximately 100 or more entries). In some cases, the history entries map did not display. Workaround was to increase the refresh rate or decrease the number of location history entries stored for the client.
- CSCsv00557—WCS did not have the ability to verify that a heat map region was drawn correctly. An inaccurately drawn heat map region could cause computation errors in the calculation of the heat map. Workaround was to delete incorrectly drawn rails and regions from the Monitor > Map menu to allow calibration to go ahead and then redraw the rails and regions correctly.

- CSCsv03394— If the admin user is removed from the location appliance, the connection to Cisco WCS is lost. Additionally, you cannot recreate the user at the System > Accounts > Users window as it will no longer be available.

  To recover the admin user, enter the following commands (noted in **bold)** and then restart the location appliance.

  Enter the following command to generate *dbuserpass:*

  [root@mse ~]# **getdatabaseparams**

  The following displays to the screen:

  ```
  dbuserpass
  ```

  Enter the following command and use the generated *dbuserpass* value:

  [root@mse ~]# **/opt/mse/locserver/bin/tools/solid/solsql "tcp 2315" dba** *dbuserpass*

  The following displays on the screen:

  ```
  Solid SQL Editor (teletype) v.06.00.1049
  Copyright (C) Solid Information Technology Ltd 1993-2008
  Connected to 'tcp 2315'.
  Execute SQL statements terminated by a semicolon.
  Exit by giving command: exit;
  ```

  Enter the following command:

  insert into AESUSER (OBJECTID, PARENTID, CHANGEDON, MASK, USERNAME, PASSWORD, PERMISSIONS, GROUPNAME) VALUES (1,0, 1168465726685,0, 'admin', 'admin', 255, 'admin');

  The following displays on the screen:

  ```
  Command completed successfully, 1 rows affected.
  ```

  Enter the following command:

  commit work;

  The following displays on the screen:

  ```
  Command completed successfully, 0 rows affected.
  ```

  Enter the following command:

  select * from aesuser;

  The following displays on the screen:

  ```
  OBJECTID  PARENTID   CHANGEDON    MASK USERNAME PASSWORD PERMISSIONS GROUPNAME
  --------  --------   ------------ ---- -------- -------- ----------- ---------
     1      0          1168465726685  0   admin    admin          255   admin

  1 rows fetched.
  ```

  Restart the location appliance.

- CSCsv06454—The WCS communication password did not apply during the automatic installation script. A change has been made in the script so that the MSE communication username is added to the database after entry in the setup script. Workaround was not to not delete *admin* user on location appliance from WCS.
- CSCsv13564—When recompute RF prediction was launched, access points with an antenna type of *other* did not display an error message as expected. Instead the RF prediction was calculated and the following error was displayed, “RF Prediction Engine could not retrieve Coverage HeatMaps from the database. Please make sure that the RF Prediction is computed before computing location.” Workaround was to configure the correct antenna.
- CSCsv20136—The location server database truncated the GPS marker coordinates to two decimal places.
- CSCsv29199, CSCsv57187—If an FTP download to the location appliance failed because the interface is down or the system could not be reached, an incorrect and unrelated message returned. For example, the following incorrect message might display "Unable to download software image. Reason: Failed to find the file *image filename* in the directory */opt/mse/locserver/../../installers*,” rather than a message that the FTP file transfer failed because the location appliance was unreachable. Workaround was to check to see if location appliance was reachable and if the interface was *UP*.
- CSCsv29428—TFTP servers might have mistakenly displayed as FTP servers on the FTP download image page (Configure > Controllers > *Controller* > *Download software (FTP))*.
- CSCsw17583—In some RF environments, where location accuracy was around 60 to 70% or where incorrect client or tag floor location placements occurred, you might need to modify the moment RSSI thresholds in the *aes-config.xml* file in the *opt/locserver/conf/* directory of the location server. Issue was resolved by documenting the configuration solution in the release notes. Workaround is to contact TAC for assistance in modifying the RSSI threshold parameters in the *aes-config.xml* file on the location server.
- CSCsw49802—In release 5.0 and earlier, unencrypted user passwords were stored in the location appliance and mobility services engine database. In release 6.0 and later, all user passwords stored in the database are encrypted.
- CSCsx56618—If a release of AeroScout MobileView *earlier than 4.1* is in use, incorrect responses are sent to those northbound notifications received from the location appliance. Northbound notifications are then resent by the location appliance, overloading the notification queue and resulting in reports of dropped notifications. Issue is resolved by documenting the need to install release 4.1 of *AeroScout MobileView* in the release notes.
- CSCsy70790–When simultaneous history queries (getTagHistoryList, getStationHistoryList, getRogueClientHistoryList, and getRogueAPHistoryList) of the location appliance were made from a third-party application, no successful response was received. API was modified to resolve the issue.
- CSCsy78058—Advanced searches for telemetry tags did not work.
- CSCsy85829–Some notification queries did not respond when the MAC address was entered in uppercase. Changes were made to accept both MAC addresses in both an uppercase and lowercase format (XX:XX:XX:XX:XX:XX or xx:xx:xx:xx:xx:xx).
- CSCsz01574–No client username displayed and an incorrect authentication state appeared for clients on maps and on the Monitor > Clients window when the option *Clients detected by MSEs* was selected from the show drop-down menu. This occurred when the location appliance was in a network in which an anchor and foreign controller configuration was in use. (Related caveat CSCsw71297).

- CSCsz05363–A mismatch in the location path loss calculation between WCS and the controller existed when the Normal Client check box was not checked on the Configure > Controller Template Launch Pad > *Location Configuration* > *New* window.
- CSCsz29526—When multiple mobility services engines and location appliances were running an accuracy test on the same floor and at least one of the systems was running release 5.1, the accuracy test would not complete successfully.

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://www.cisco.com/cgi-bin/Support/Bugtool/launch_bugtool.pl

(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, refer to the Cisco TAC website at:

http://www.cisco.com/tac

Click **Troubleshooting.** Then choose your product (Wireless >Unified Wireless LAN Management > Cisco Wireless Location Appliance) and then select the **Troubleshoot and Alerts** heading on the product page to find information on the problem you are experiencing and other service advisories.

Related Documentation

The following documents are related to location appliances:

- *Cisco 2700 Series Location Appliance Getting Started Guide*
- *Cisco Location Appliance Configuration Guide, Release 6.0*
- *Cisco Wireless Control System Configuration Guide, Release 6.0*
- *Cisco Wireless LAN Controller Configuration Guide, Release 6.0*

Note You can see the latest online versions of these documents by selecting the Wireless category and then the appropriate product from the Wireless LAN Controller and Wireless LAN Management > Unified Wireless LAN Management sub-category panels at the following link: http://www.cisco.com/web/psa/products/tsd_products_support_configure.html

Obtaining Documentation, Support, and Security Guidelines

For information on obtaining documentation, obtaining support, providing documentation feedback, security guidelines, and also recommended aliases and general Cisco documents, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html

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