# 在CMX中配置Hyperlocation并排除故障

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## 简介

本文档介绍如何在互联移动体验(CMX)中配置和排除超级定位故障。

## 先决条件

#### 要求

思科建议您了解Hyperlocation部署指南。

#### 使用的组件

本文档中的信息基于以下软件和硬件版本:

- CMX 10.2.3-34
- WLC 2504 / 8.2.130.0
- AIR-CAP3702I-E-K9

本文档中的信息都是基于特定实验室环境中的设备编写的。本文档中使用的所有设备最初均采用原 始(默认)配置。如果您的网络处于活动状态,请确保您了解所有命令的潜在影响。

## 背景信息

本文档帮助排除Fast Locate和Hyperlocation在不按预期工作时的故障。

Hyperlocation是思科的一项功能,可提高定位准确性。您可以在《Hyperlocation部署指南》中了解 有关<u>此功能的详细信息</u>。

Hyperlocation使用接入点(AP)提供的有关客户端(RSSI级别)和到达角(AoA)的数据。

要使用超级定位,您必须具有带Halo天线的超级定位(无线安全和监控器/WSM)模块。Halo天线

内有32个天线,可以检测探测/数据包从接收信号强度指示(RSSI)信息以外到达的位置,从而使定位 更加精确。有关详细信息,请<u>点击此处</u>。

此外,Hyperlocation是仅当CMX安装在3365移动服务引擎(MSE)物理设备或高端虚拟设备上时才能 启用的功能。

请参阅CMX数据表的表<u>3.以</u>检查硬件指南。

如果您不确定虚拟设备上的运行规格,可以发出以下命令之一:

cmxos inventory cmxos verify

## 使用的首字母缩略词

- WLC 无线LAN控制器
- AoA 到达角
- CMX 互联移动体验
- AP 接入点
- NMSP 网络移动服务协议
- SNMP 简单网络管理协议
- GUI 图形用户界面
- CLI 命令行界面
- ICMP Internet控制消息协议
- HTTP 超文本传输协议
- RSSI 接收信号强度指示
- NTP 网络时间协议
- MAC 介质访问控制
- WSM 无线安全和监控模块

#### 配置

步骤1.在WLC上启用Hyperlocation。

要在WLC上启用Hyperlocation,请使用以下命令行:

#### 导航至Wireless > Access Points > Global configuration > Enable Hyperlocation(复选框)。

步骤2.在CMX上启用Hyperlocation。

要在CMX中启用Hyperlocation,请登录GUI并执行此步骤:

导航至**系统>(齿轮图标)>位置设置>启用Hyperlocation(复选框),如**下图所示。

rt[int]in cxx cisco 1023-34	r ¥o 🗰 🇌 admin -
SETTINGS	Dashboard Alerts Patterns Metrics
General Leasting Option Prove	
System at a Glance Node Details	neters 🌼
Tracking Denable OW Location	Enable Location Filtering
Node Services Filtering Use Default Heatmaps for Non Cisco An	ennas Chokepoint Usage Memory CPU Actions
Cartion Setup Carable Hyperlocation	Use Chokepoints for Interfloor conflicts
avitosin-1.mse Configuration Location Analytos Mail Server	NEVER 23.40% 1.38% Restart All
Chokepoint Out of Range Timeout	Relative discard RSSI time (secs)
Maps Setup 60	60
Upgrade Relative discard AoA time (secs) Abso	lute discard RSSI time RSSI Cutoff
Controllers 60 60	-75
IP Address Version Movement Detection Para	Action Action
10,48,39,164 8.2.130.0 Historical Decoder and	Edit Delete
10.48.39.227 8.3.102.0 Individual KSSI change threshold	Aggregated KSSI change threshold Edit Delete
- Manu anu DSSI abases persentana threeh	ld Manu piering DSSI percentage threshold
20	20
History Storage Parameter	S
History Pruning Interval	
30	
	Cancel Save

这还启用快速定位(即基于数据帧的位置),因此只要您有(非超级定位)监控模式AP或无线电或 使用超级定位模块,就会启用它。存在与位置服务相关的各种参数,您可以调整这些参数。您可以 在此处找到更多信息;<u>链接</u>。

步骤3.检验WLC上的Hyperlocation。

要验证WLC上是否启用了Hyperlocation:

 AP78ba.f99f.3c24 78:ba:f9:9d:a6:e0 3 UP 步骤4.检查AP上是否检测到Hyperlocation模块。 (Cisco Controller) > show ap inventory ? <Cisco AP> Enter the name of the Cisco AP. all Displays inventory for all Cisco APs (Cisco Controller) >show ap inventory all Inventory for AP78ba.f99f.3c24 NAME: "AP3700", DESCR: "Cisco Aironet 3700 Series (IEEE 802.11ac) Access Point" PID: AIR-CAP3702I-E-K9, VID: V03, SN: FCW1915N9YJ NAME: "Dot11Radio2" , DESCR: "802.11N XOR Radio" PID: AIR-RM3010L-E-K9 , VID: V01, SN: FOC19330ASB MODULE NAME: "Hyperlocation Module w/Antenna" ,DESCR: "Advanced Security Module (.11acW1) w/Ant" PID: AIR-RM3010L-E-K9 ,VID: V01 ,SN: FOC19330ASB ,MaxPower: 2000mW (Cisco Controller) >show ap module summary all AP Name External Module Type \_\_\_\_\_ AP78ba.f99f.3c24 Hyperlocation Module w/Antenna 注意:无法检测晕环天线是否连接到超定位模块。您需要实际验证。 步骤5.检验AP上的Hyperlocation。 ap#show capwap client rcb -----OUTPUT OMITTED-----Nexthop MAC Address : 0014.f15f.f7ca

HYPERLOCATION ADMIN STATE

WLC HYPERLOCATION SRC PORT : 9999

MSE IP[0] : 10.48.71.21

MSE PORT[0] : 2003

BLE Module State : ENABLED

WLC GATEWAY MAC

: 1

: 00:14:F1:5F:F7:CA

-----OUTPUT OMITTED------

接入点是将AoA消息发送到CMX的接入点,CMX通过WLC转发。确保提及的MSE IP是您希望使用 的IP,因为AP上仅支持一个MSE IP。

如果CMX和WLC不在同一子网中,请确保WLC网关MAC是WLC的网关MAC地址。

否则,WLC网关MAC是CMX MAC地址。

步骤6.检验CMX上的Hyperlocation。

第一步是验证所有服务是否都在CMX上运行。突出显示的选项由Hyperlocation功能使用。

[cmxadmin@avitosin-1 ~]\$ cmxctl status

Done

The nodeagent service is currently running with PID: 19316

avitosin-1.mse   Analytics   Running   1 days, 02:14   +
avitosin-1.mse   Cache_6378   Running   1 days, 02:15   +
avitosin-1.mse   Cache_6379   Running   1 days, 02:14
avitosin-1.mse   Cache_6380   Running   1 days, 02:14
avitosin-1.mse   Cache_6381   Running   1 days, 02:14
avitosin-1.mse   Cache_6382   Running   1 days, 02:14
avitosin-1.mse   Cache_6383   Running   1 days, 02:14
avitosin-1.mse   Cache_6385   Running   1 days, 02:14
avitosin-1.mse   Cassandra   Running   1 days, 02:15
avitosin-1.mse   Confd   Running   1 days, 02:14
avitosin-1.mse   Configuration   Running   1 days, 02:13
avitosin-1.mse   Connect   Running   1 days, 02:13
avitosin-1.mse   Consul   Running   1 days, 02:15
avitosin-1.mse   Database   Running   1 days, 02:15
avitosin-1.mse   Haproxy   Running   1 days, 02:14
avitosin-1.mse   Hyperlocation   Running   1 days, 02:12
avitosin-1.mse   Influxdb   Running   1 days, 02:14
avitosin-1.mse   Iodocs   Running   1 days, 02:14
avitosin-1.mse   Location   Running   1 days, 02:13

avitosin-1.mse	Matlabengine   Running   1 days, 02:12			
avitosin-1.mse	Metrics   Running   1 days, 02:14			
avitosin-1.mse	Nmsplb   Running   0 days, 01:47			
avitosin-1.mse   Qlesspyworker   Running   1 days, 02:14				

步骤7.检验CMX是否从WLC收到AoA信息。

tcpdump -i eth0 dst port 2003 -w aoa3.pcap Wireshark捕获证明CMX接收AoA信息,如图所示。

Image: Constraint of the second sec										📋 aoa3.pcap
Apply a display filter	1		2 💿	S 🕺 🗋 🔳	९ 🗢 🔿 🖭 有 🞐		$\oplus$ $\Theta$	Q 🎹		
Internet     Source     Destination     Protocol     Length     Info       2     0.003047     10.48.39.251     10.48.71.21     UDP     146     9999     - 2003     Len=120       2     0.003747     10.48.39.251     10.48.71.21     UDP     146     9999     - 2003     Len=184       3     1.087479     10.48.39.214     10.48.71.21     UDP     130     9999     - 2003     Len=38       4     2.733577     10.48.39.251     10.48.71.21     UDP     178     9999     - 2003     Len=136       6     3.001227     10.48.39.251     10.48.71.21     UDP     178     9999     - 2003     Len=136       9     6.000959     10.48.39.251     10.48.71.21     UDP     176     9999     - 2003     Len=144       10     8.5999418     10.48.39.251     10.48.71.21     UDP     146     9999     - 2003     Len=144       11     9.00071     10.48.39.251     10.48.71.21     UDP     178     9999     - 2003     Len=144<		Apply a	display filter	<921>						
No.     Time     Source     Destination     Protocol     Length     Link       2     0.008080     10.448.39.251     10.48.71.21     UDP     162     9999     -2003     Len=120       3     1.087479     10.48.39.251     10.48.71.21     UDP     130     9999     -2003     Len=86       4     2.733577     10.48.39.251     10.48.71.21     UDP     130     9999     -2003     Len=88       5     2.999859     10.48.39.251     10.48.71.21     UDP     178     9999     -2003     Len=120       7     4.355249     10.48.39.251     10.48.71.21     UDP     146     9999     -2003     Len=144       8     5.999338     10.48.39.251     10.48.71.21     UDP     146     9999     -2003     Len=144       18     9.600059     10.48.39.251     10.48.71.21     UDP     146     9999     -2003     Len=144       18     9.60071     10.48.39.251     10.48.71.21     UDP     146     9999     -2003		мрріў а	uispidy filter	. \00/2						
1   0.00000   10.48.39.251   10.48.71.21   UDP   162   9999   - 2003   Lem:120     2   0.003747   10.48.39.251   10.48.71.21   UDP   130   9999   - 2003   Lem:88     4   2.733577   10.48.39.214   10.48.71.21   UDP   130   9999   - 2003   Lem:88     4   2.733577   10.48.39.251   10.48.71.21   UDP   130   9999   - 2003   Lem:136     5   2.999859   10.48.39.251   10.48.71.21   UDP   146   9999   - 2003   Lem:136     7   4.355249   10.48.39.251   10.48.71.21   UDP   146   9999   - 2003   Lem:136     9   6.000599   10.48.39.251   10.48.71.21   UDP   146   9999   - 2003   Lem:144     11   9.000791   10.48.39.251   10.48.71.21   UDP   146   9999   - 2003   Lem:146     12   9.262944   10.48.39.251   10.48.71.21   UDP   130   9999   - 2003   Lem:146     14   19.90193   10.48.39.251	Ν	0.	Time	Source	Destination	Protocol	Length	Info		
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9   6.000959   10.48.39.251   10.48.71.21   UDP   146   9999 + 2003   Len=104     10   8.999418   10.48.39.251   10.48.71.21   UDP   146   9999 + 2003   Len=136     11   9.000791   10.48.39.251   10.48.71.21   UDP   146   9999 + 2003   Len=136     12   9.262904   10.48.39.251   10.48.71.21   UDP   146   9999 + 2003   Len=136     14   11.995126   10.48.39.251   10.48.71.21   UDP   130   9999 + 2003   Len=152     15   11.999193   10.48.39.251   10.48.71.21   UDP   162   9999 + 2003   Len=120     16   14.999402   10.48.39.251   10.48.71.21   UDP   162   9999 + 2003   Len=120     17   14.996368   10.48.39.251   10.48.71.21   UDP   162   9999 + 2003   Len=120     18   17.994857   10.48.39.251   10.48.71.21   UDP   162   999 + 2003   Len=120     18   17.994857   10.48.39.251   10.48.71.21   UDP   162   999 + 2003   Len=120		8	5.999538	10.48.39.251	10.48.71.21	UDP	178	9999 → 2003	Len=136	
10   8.999418   10.48.39.251   10.48.71.21   UDP   146   9999   + 2003   Len=104     11   9.000791   10.48.39.251   10.48.71.21   UDP   178   9999   + 2003   Len=136     12   9.262904   10.48.39.214   10.48.71.21   UDP   130   9999   + 2003   Len=136     13   10.894785   10.48.39.214   10.48.71.21   UDP   130   9999   + 2003   Len=152     15   11.999193   10.48.39.251   10.48.71.21   UDP   162   9999   + 2003   Len=120     16   14.994962   10.48.39.251   10.48.71.21   UDP   162   9999   + 2003   Len=120     16   17.996368   10.48.39.251   10.48.71.21   UDP   162   9999   + 2003   Len=120     18   17.996371   10.48.39.251   10.48.71.21   UDP   162   9999   + 2003   Len=120     20   18.102843   10.48.39.251   10.48.71.21   UDP   162   9999   + 2003   Len=120     21   1.998486		9	6.000959	10.48.39.251	10.48.71.21	UDP	146	9999 → 2003	Len=104	
11   9.060791   10.48.39.251   10.48.71.21   UDP   178   9999 - 2003   Len=136     12   9.262904   10.48.39.214   10.48.71.21   UDP   136   9999 - 2003   Len=104     13   10.894785   10.48.39.251   10.48.71.21   UDP   139   9999 - 2003   Len=152     14   11.995126   10.48.39.251   10.48.71.21   UDP   162   9999 - 2003   Len=120     16   14.994902   10.48.39.251   10.48.71.21   UDP   178   9999 - 2003   Len=120     17   14.996368   10.48.39.251   10.48.71.21   UDP   178   9999 - 2003   Len=120     18   17.994857   10.48.39.251   10.48.71.21   UDP   162   9999 - 2003   Len=120     20   18.102843   10.48.39.251   10.48.71.21   UDP   162   9999 - 2003   Len=88     21   10.98408   10.48.39.251   10.48.71.21   UDP   162   9999 - 2003   Len=120     22   18.102843   10.48.39.251   10.48.71.21   UDP   162   9999 - 2003   Len=120 <td></td> <td>10</td> <td>8.999418</td> <td>10.48.39.251</td> <td>10.48.71.21</td> <td>UDP</td> <td>146</td> <td>9999 → 2003</td> <td>Len=104</td> <td></td>		10	8.999418	10.48.39.251	10.48.71.21	UDP	146	9999 → 2003	Len=104	
12   9.262904   10.48.39.214   10.48.71.21   UDP   136   9999 - 2003   Len=104     13   10.894785   10.48.39.214   10.48.71.21   UDP   130   9999 - 2003   Len=48     14   11.995126   10.48.39.251   10.48.71.21   UDP   194   9999 - 2003   Len=152     15   11.999193   10.48.39.251   10.48.71.21   UDP   162   9999 - 2003   Len=120     16   14.994902   10.48.39.251   10.48.71.21   UDP   162   9999 - 2003   Len=120     18   17.994537   10.48.39.251   10.48.71.21   UDP   162   9999 - 2003   Len=120     19   17.996538   10.48.39.251   10.48.71.21   UDP   162   9999 - 2003   Len=120     20   18.102843   10.48.39.251   10.48.71.21   UDP   162   9999 - 2003   Len=120     21   1994687   10.48.39.251   10.48.71.21   UDP   162   9999 - 2003   Len=120     22   11.099408   10.48.39.251   10.48.71.21   UDP   162   9999 - 2003   Len=120 <td></td> <td>11</td> <td>9.000791</td> <td>10.48.39.251</td> <td>10.48.71.21</td> <td>UDP</td> <td>178</td> <td>9999 → 2003</td> <td>Len=136</td> <td></td>		11	9.000791	10.48.39.251	10.48.71.21	UDP	178	9999 → 2003	Len=136	
13   10.894785   10.48.39.214   10.48.71.21   UDP   130   9999 + 2003   Len=88     14   11.995126   10.48.39.251   10.48.71.21   UDP   194   9999 + 2003   Len=152     15   11.999193   10.48.39.251   10.48.71.21   UDP   162   9999 + 2003   Len=136     16   14.994302   10.48.39.251   10.48.71.21   UDP   162   9999 + 2003   Len=136     17   14.996368   10.48.39.251   10.48.71.21   UDP   162   9999 + 2003   Len=120     18   17.994857   10.48.39.251   10.48.71.21   UDP   162   9999 + 2003   Len=120     20   18.102843   10.48.39.251   10.48.71.21   UDP   162   9999 + 2003   Len=120     21   1.8.102843   10.48.39.251   10.48.71.21   UDP   130   9999 + 2003   Len=144     22   21.099952   10.48.39.251   10.48.71.21   UDP   146   999 + 2003   Len=120     23   24.098574   10.48.39.251   10.48.71.21   UDP   162   999 + 2003   Len=120 </td <td></td> <td>12</td> <td>9.262904</td> <td>10.48.39.214</td> <td>10.48.71.21</td> <td>UDP</td> <td>146</td> <td>9999 → 2003</td> <td>Len=104</td> <td></td>		12	9.262904	10.48.39.214	10.48.71.21	UDP	146	9999 → 2003	Len=104	
14   11.995126   10.48.39.251   10.48.71.21   UDP   194   9999 + 2003   Len=152     15   11.999193   10.48.39.251   10.48.71.21   UDP   162   9999 + 2003   Len=136     16   14.994902   10.48.39.251   10.48.71.21   UDP   178   9999 + 2003   Len=120     17   14.996368   10.48.39.251   10.48.71.21   UDP   162   9999 + 2003   Len=120     18   17.994857   10.48.39.251   10.48.71.21   UDP   162   9999 + 2003   Len=120     19   17.996231   10.48.39.251   10.48.71.21   UDP   162   9999 + 2003   Len=120     20   18.102843   10.48.39.251   10.48.71.21   UDP   162   9999 + 2003   Len=120     21   10.98408   10.48.39.251   10.48.71.21   UDP   162   9999 + 2003   Len=120     22   21.099952   10.48.39.251   10.48.71.21   UDP   162   9999 + 2003   Len=120     23   24.098574   10.48.39.251   10.48.71.21   UDP   162   9999 + 2003   Len=120<		13	10.894785	10.48.39.214	10.48.71.21	UDP	130	9999 → 2003	Len=88	
1511.99919310.48.39.25110.48.71.21UDP1629999 $\rightarrow$ 2003Len=1201614.99490210.48.39.25110.48.71.21UDP1789999 $\rightarrow$ 2003Len=1361714.99636810.48.39.25110.48.71.21UDP1629999 $\rightarrow$ 2003Len=1201817.99485710.48.39.25110.48.71.21UDP1629999 $\rightarrow$ 2003Len=1041917.99623110.48.39.25110.48.71.21UDP1629999 $\rightarrow$ 2003Len=1202018.10284310.48.39.25110.48.71.21UDP1309999 $\rightarrow$ 2003Len=1882121.09840810.48.39.25110.48.71.21UDP1629999 $\rightarrow$ 2003Len=1042221.09995210.48.39.25110.48.71.21UDP1629999 $\rightarrow$ 2003Len=1202324.09857410.48.39.25110.48.71.21UDP1629999 $\rightarrow$ 2003Len=1202424.09980410.48.39.25110.48.71.21UDP1629999 $\rightarrow$ 2003Len=1202527.09809910.48.39.25110.48.71.21UDP1629999 $\rightarrow$ 2003Len=1202627.09983910.48.39.25110.48.71.21UDP1629999 $\rightarrow$ 2003Len=1202627.09983910.48.39.25110.48.71.21UDP1629999 $\rightarrow$ 2003Len=1202627.09983910.48.39.25110.48.71.21UDP1309999 $\rightarrow$ 2003Len=1882728.88030710.48.39.21410.48		14	11.995126	10.48.39.251	10.48.71.21	UDP	194	9999 → 2003	Len=152	
16   14.994902   10.48.39.251   10.48.71.21   UDP   178   9999 → 2003   Len=136     17   14.996368   10.48.39.251   10.48.71.21   UDP   162   9999 → 2003   Len=120     18   17.994857   10.48.39.251   10.48.71.21   UDP   146   9999 → 2003   Len=104     19   17.996231   10.48.39.251   10.48.71.21   UDP   162   9999 → 2003   Len=120     20   18.102843   10.48.39.251   10.48.71.21   UDP   162   9999 → 2003   Len=120     20   18.102843   10.48.39.251   10.48.71.21   UDP   130   9999 → 2003   Len=120     21   20.994574   10.48.39.251   10.48.71.21   UDP   162   9999 → 2003   Len=120     23   24.098574   10.48.39.251   10.48.71.21   UDP   162   9999 → 2003   Len=120     24   24.099804   10.48.39.251   10.48.71.21   UDP   162   9999 → 2003   Len=120     25   27.098899   10.48.39.251   10.48.71.21   UDP   162   9999 → 2003   Len=88		15	11.999193	10.48.39.251	10.48.71.21	UDP	162	9999 → 2003	Len=120	
17   14.996368   10.48.39.251   10.48.71.21   UDP   162   9999 + 2003   Len=120     18   17.994857   10.48.39.251   10.48.71.21   UDP   146   9999 + 2003   Len=104     19   17.996231   10.48.39.251   10.48.71.21   UDP   162   9999 + 2003   Len=120     20   18.102843   10.48.39.251   10.48.71.21   UDP   130   9999 + 2003   Len=120     21   10.98408   10.48.39.251   10.48.71.21   UDP   146   9999 + 2003   Len=120     22   1.099952   10.48.39.251   10.48.71.21   UDP   162   9999 + 2003   Len=120     23   24.098574   10.48.39.251   10.48.71.21   UDP   162   9999 + 2003   Len=120     24   24.099804   10.48.39.251   10.48.71.21   UDP   162   9999 + 2003   Len=120     25   27.098809   10.48.39.251   10.48.71.21   UDP   162   9999 + 2003   Len=120     26   27.098839   10.48.39.251   10.48.71.21   UDP   130   9999 + 2003   Len=88 <td></td> <td>16</td> <td>14.994902</td> <td>10.48.39.251</td> <td>10.48.71.21</td> <td>UDP</td> <td>178</td> <td>9999 → 2003</td> <td>Len=136</td> <td></td>		16	14.994902	10.48.39.251	10.48.71.21	UDP	178	9999 → 2003	Len=136	
18   17.994857   10.48.39.251   10.48.71.21   UDP   146   9999 - 2003   Len=104     19   17.996231   10.48.39.251   10.48.71.21   UDP   162   9999 - 2003   Len=120     20   18.102843   10.48.39.251   10.48.71.21   UDP   130   9999 - 2003   Len=88     21   21.098408   10.48.39.251   10.48.71.21   UDP   146   9999 - 2003   Len=104     22   21.099952   10.48.39.251   10.48.71.21   UDP   162   9999 - 2003   Len=104     23   24.098574   10.48.39.251   10.48.71.21   UDP   162   9999 - 2003   Len=120     23   24.09864   10.48.39.251   10.48.71.21   UDP   162   9999 - 2003   Len=120     24   24.09804   10.48.39.251   10.48.71.21   UDP   162   9999 - 2003   Len=120     25   27.098099   10.48.39.251   10.48.71.21   UDP   162   9999 - 2003   Len=120     26   27.09839   10.48.39.251   10.48.71.21   UDP   130   9999 - 2003   Len=120 <td></td> <td>17</td> <td>14.996368</td> <td>10.48.39.251</td> <td>10.48.71.21</td> <td>UDP</td> <td>162</td> <td>9999 → 2003</td> <td>Len=120</td> <td></td>		17	14.996368	10.48.39.251	10.48.71.21	UDP	162	9999 → 2003	Len=120	
19   17.996231   10.48.39.251   10.48.71.21   UDP   162   9999 + 2003   Len=120     20   18.102843   10.48.39.251   10.48.71.21   UDP   130   9999 + 2003   Len=88     21   21.098408   10.48.39.251   10.48.71.21   UDP   146   9999 + 2003   Len=104     22   21.099952   10.48.39.251   10.48.71.21   UDP   162   9999 + 2003   Len=104     23   24.098574   10.48.39.251   10.48.71.21   UDP   162   9999 + 2003   Len=120     23   24.098604   10.48.39.251   10.48.71.21   UDP   162   9999 + 2003   Len=120     24   24.09804   10.48.39.251   10.48.71.21   UDP   162   9999 + 2003   Len=120     25   27.098099   10.48.39.251   10.48.71.21   UDP   162   9999 + 2003   Len=120     26   27.09839   10.48.39.251   10.48.71.21   UDP   130   9999 + 2003   Len=188     27   28.880367   10.48.39.214   10.48.71.21   UDP   146   CAPP MDS Encrypted		18	17.994857	10.48.39.251	10.48.71.21	UDP	146	9999 → 2003	Len=104	
20   18.102843   10.48.39.251   10.48.71.21   UDP   130   9999 + 2003   Len=88     21   21.098408   10.48.39.251   10.48.71.21   UDP   146   9999 + 2003   Len=104     22   21.099952   10.48.39.251   10.48.71.21   UDP   162   9999 + 2003   Len=104     23   24.098574   10.48.39.251   10.48.71.21   UDP   162   9999 + 2003   Len=104     24   24.09804   10.48.39.251   10.48.71.21   UDP   162   9999 + 2003   Len=104     24   24.09804   10.48.39.251   10.48.71.21   UDP   162   9999 + 2003   Len=120     25   27.098099   10.48.39.251   10.48.71.21   UDP   162   9999 + 2003   Len=120     26   27.09839   10.48.39.251   10.48.71.21   UDP   130   9999 + 2003   Len=88     27   28.880367   10.48.39.214   10.48.71.21   UDP   146   CAPP MDS Encrypted     28   28.81569   10.48.39.251   10.48.71.21   UDP   178   9999 + 2003   Len=136 <t< td=""><td></td><td>19</td><td>17.996231</td><td>10.48.39.251</td><td>10.48.71.21</td><td>UDP</td><td>162</td><td>9999 → 2003</td><td>Len=120</td><td></td></t<>		19	17.996231	10.48.39.251	10.48.71.21	UDP	162	9999 → 2003	Len=120	
21   21.098408   10.48.39.251   10.48.71.21   UDP   146   9999 + 2003   Len=104     22   21.099952   10.48.39.251   10.48.71.21   UDP   162   9999 + 2003   Len=120     23   24.098574   10.48.39.251   10.48.71.21   UDP   146   9999 + 2003   Len=104     24   24.099804   10.48.39.251   10.48.71.21   UDP   162   9999 + 2003   Len=104     25   27.098099   10.48.39.251   10.48.71.21   UDP   162   9999 + 2003   Len=120     26   27.098399   10.48.39.251   10.48.71.21   UDP   162   9999 + 2003   Len=120     26   27.098399   10.48.39.251   10.48.71.21   UDP   130   9999 + 2003   Len=88     27   28.880307   10.48.39.164   10.48.71.21   UDP   146   9999 + 2003   Len=104     28   28.881569   10.48.39.251   10.48.71.21   UDP   178   9999 + 2003   Len=136     30   30.097812   10.48.39.251   10.48.71.21   UDP   130   9999 + 2003   Len=164<		20	18.102843	10.48.39.251	10.48.71.21	UDP	130	9999 → 2003	Len=88	
22   21.099952   10.48.39.251   10.48.71.21   UDP   162   9999 + 2003   Len=120     23   24.098574   10.48.39.251   10.48.71.21   UDP   146   9999 + 2003   Len=104     24   24.098804   10.48.39.251   10.48.71.21   UDP   162   9999 + 2003   Len=120     25   27.098099   10.48.39.251   10.48.71.21   UDP   162   9999 + 2003   Len=120     26   27.098399   10.48.39.251   10.48.71.21   UDP   162   9999 + 2003   Len=120     26   27.098399   10.48.39.251   10.48.71.21   UDP   130   9999 + 2003   Len=88     27   28.880307   10.48.39.164   10.48.71.21   UDP   146   9999 + 2003   Len=104     28   28.881569   10.48.39.251   10.48.71.21   UDP   178   9999 + 2003   Len=136     30   30.097812   10.48.39.251   10.48.71.21   UDP   146   9999 + 2003   Len=104     31   30.513451   10.48.39.214   10.48.71.21   UDP   130   9999 + 2003   Len=88 </td <td></td> <td>21</td> <td>21.098408</td> <td>10.48.39.251</td> <td>10.48.71.21</td> <td>UDP</td> <td>146</td> <td>9999 → 2003</td> <td>Len=104</td> <td></td>		21	21.098408	10.48.39.251	10.48.71.21	UDP	146	9999 → 2003	Len=104	
23   24.098574   10.48.39.251   10.48.71.21   UDP   146   9999 → 2003   Len=104     24   24.099804   10.48.39.251   10.48.71.21   UDP   162   9999 → 2003   Len=120     25   27.098099   10.48.39.251   10.48.71.21   UDP   162   9999 → 2003   Len=120     26   27.099839   10.48.39.251   10.48.71.21   UDP   130   9999 → 2003   Len=88     27   28.880307   10.48.39.164   10.48.71.21   UDP   146   9999 → 2003   Len=104     28   28.861569   10.48.39.251   10.48.71.21   UDP   146   9999 → 2003   Len=104     29   30.094237   10.48.39.251   10.48.71.21   UDP   178   9999 → 2003   Len=136     30   30.097812   10.48.39.251   10.48.71.21   UDP   146   9999 → 2003   Len=104     31   30.513451   10.48.39.214   10.48.71.21   UDP   130   9999 → 2003   Len=88     32   30.515926   10.48.39.164   10.48.71.21   UDP   130   9999 → 2003   Len=88 </td <td></td> <td>22</td> <td>21.099952</td> <td>10.48.39.251</td> <td>10.48.71.21</td> <td>UDP</td> <td>162</td> <td>9999 → 2003</td> <td>Len=120</td> <td></td>		22	21.099952	10.48.39.251	10.48.71.21	UDP	162	9999 → 2003	Len=120	
24   24.099804   10.48.39.251   10.48.71.21   UDP   162   9999 → 2003   Len=120     25   27.098099   10.48.39.251   10.48.71.21   UDP   162   9999 → 2003   Len=120     26   27.09839   10.48.39.251   10.48.71.21   UDP   130   9999 → 2003   Len=88     27   28.880307   10.48.39.164   10.48.71.21   UDP   146   9999 → 2003   Len=104     28   28.881569   10.48.39.214   10.48.71.21   UDP   146   9999 → 2003   Len=136     29   30.094237   10.48.39.251   10.48.71.21   UDP   178   9999 → 2003   Len=136     30   30.097812   10.48.39.251   10.48.71.21   UDP   146   9999 → 2003   Len=14     31   30.513451   10.48.39.214   10.48.71.21   UDP   130   9999 → 2003   Len=88     32   30.513451   10.48.39.164   10.48.71.21   UDP   130   9999 → 2003   Len=88     32   30.515926   10.48.39.164   10.48.71.21   UDP   130   9999 → 2003   Len=88		23	24.098574	10.48.39.251	10.48.71.21	UDP	146	9999 → 2003	Len=104	
25   27.098099   10.48.39.251   10.48.71.21   UDP   162   9999 → 2003   Len=120     26   27.099839   10.48.39.251   10.48.71.21   UDP   130   9999 → 2003   Len=88     27   28.880307   10.48.39.164   10.48.71.21   UDP   146   9999 → 2003   Len=104     28   28.881569   10.48.39.214   10.48.71.21   UDP   146   CAPP   MD5   Encrypted     29   30.094237   10.48.39.251   10.48.71.21   UDP   178   9999 → 2003   Len=136     30   30.097812   10.48.39.251   10.48.71.21   UDP   146   9999 → 2003   Len=104     31   30.513451   10.48.39.251   10.48.71.21   UDP   136   9999 → 2003   Len=104     31   30.513451   10.48.39.214   10.48.71.21   UDP   130   9999 → 2003   Len=88     32   30.515926   10.48.39.164   10.48.71.21   UDP   130   9999 → 2003   Len=88		24	24.099804	10.48.39.251	10.48.71.21	UDP	162	9999 → 2003	Len=120	
26   27.099839   10.48.39.251   10.48.71.21   UDP   130   9999 → 2003   Len=88     27   28.880307   10.48.39.164   10.48.71.21   UDP   146   9999 → 2003   Len=104     28   28.881569   10.48.39.214   10.48.71.21   UDP   146   CAPP   MD5   Encrypted     29   30.094237   10.48.39.251   10.48.71.21   UDP   178   9999 → 2003   Len=136     30   30.097812   10.48.39.251   10.48.71.21   UDP   146   9999 → 2003   Len=104     31   30.513451   10.48.39.214   10.48.71.21   UDP   136   9999 → 2003   Len=104     31   30.513451   10.48.39.214   10.48.71.21   UDP   130   9999 → 2003   Len=88     32   30.515926   10.48.39.164   10.48.71.21   UDP   130   9999 → 2003   Len=88		25	27.098099	10.48.39.251	10.48.71.21	UDP	162	9999 → 2003	Len=120	
27   28.880307   10.48.39.164   10.48.71.21   UDP   146   9999 → 2003   Len=104     28   28.881569   10.48.39.214   10.48.71.21   CAPP   146   CAPP MD5   Encrypted     29   30.094237   10.48.39.251   10.48.71.21   UDP   178   9999 → 2003   Len=136     30   30.097812   10.48.39.251   10.48.71.21   UDP   146   9999 → 2003   Len=104     31   30.513451   10.48.39.214   10.48.71.21   UDP   130   9999 → 2003   Len=88     32   30.515926   10.48.39.164   10.48.71.21   UDP   130   9999 → 2003   Len=88		26	27.099839	10.48.39.251	10.48.71.21	UDP	130	9999 → 2003	Len=88	
28   28.881569   10.48.39.214   10.48.71.21   CAPP   146   CAPP MD5   Encrypted     29   30.094237   10.48.39.251   10.48.71.21   UDP   178   9999 → 2003   Len=136     30   30.097812   10.48.39.251   10.48.71.21   UDP   146   9999 → 2003   Len=104     31   30.513451   10.48.39.214   10.48.71.21   UDP   130   9999 → 2003   Len=88     32   30.515926   10.48.39.164   10.48.71.21   UDP   130   9999 → 2003   Len=88		27	28.880307	10.48.39.164	10.48.71.21	UDP	146	9999 → 2003	Len=104	
29   30.094237   10.48.39.251   10.48.71.21   UDP   178   9999 → 2003   Len=136     30   30.097812   10.48.39.251   10.48.71.21   UDP   146   9999 → 2003   Len=104     31   30.513451   10.48.39.214   10.48.71.21   UDP   130   9999 → 2003   Len=88     32   30.515926   10.48.39.164   10.48.71.21   UDP   130   9999 → 2003   Len=88		28	28.881569	10.48.39.214	10.48.71.21	CAPP	146	CAPP MD5 En	crypted	
30   30.097812   10.48.39.251   10.48.71.21   UDP   146   9999 → 2003   Len=104     31   30.513451   10.48.39.214   10.48.71.21   UDP   130   9999 → 2003   Len=88     32   30.515926   10.48.39.164   10.48.71.21   UDP   130   9999 → 2003   Len=88	Ĩ	29	30.094237	10.48.39.251	10.48.71.21	UDP	178	9999 → 2003	Len=136	
31   30.513451   10.48.39.214   10.48.71.21   UDP   130   9999 → 2003   Len=88     32   30.515926   10.48.39.164   10.48.71.21   UDP   130   9999 → 2003   Len=88		30	30.097812	10.48.39.251	10.48.71.21	UDP	146	9999 → 2003	Len=104	
32 30.515926 10.48.39.164 10.48.71.21 UDP 130 9999 → 2003 Len=88		31	30.513451	10.48.39.214	10.48.71.21	UDP	130	9999 → 2003	Len=88	
		32	30.515926	10.48.39.164	10.48.71.21	UDP	130	9999 → 2003	Len=88	

Frame 1: 162 bytes on wire (1296 bits), 162 bytes captured (1296 bits)

Ethernet II, Src: CiscoInc\_2a:c4:a3 (00:06:f6:2a:c4:a3), Dst: Vmware\_99:4e:19 (00:50:56:99:4e:19)

Internet Protocol Version 4, Src: 10.48.39.251, Dst: 10.48.71.21

> User Datagram Protocol, Src Port: 9999 (9999), Dst Port: 2003 (2003)

v Data (120 bytes)

Data: ae 2f 44 f0 00 00 b4 5f ef 06 fd cb b7 6c 03 c7 ... [Length: 120]

步骤8.检验映射/物理AP部署。

确保将AP上的箭头配置为指向地图上的实际方向非常重要,否则位置精度可能会被关闭。技术上并 不要求地板上的所有AP都将其箭头指向同一方向,但强烈建议避免地图中出现任何错误(例如,在 更换AP时,很容易忘记重新配置天线方向)。

必须了解的是,只有当4个AP同时检测到客户端,且RSSI优于–75dbm时,准确性才能达到预期。 由于物理原因,部分地区不符合上述要求的,其准确度应低于预期。

#### 验证

使用本部分可确认配置能否正常运行。

如果适用,"配置"部分已介绍验证过程。

#### 故障排除

本部分提供了可用于对配置进行故障排除的信息。

本节将讨论CMX特定场景。如果WLC和CMX之间存在任何防火墙,则需要打开以下端口:

- •16113网络移动服务协议(NMSP)
- 2003 AoA(AP将AoA数据包封装在面向WLC的Capwap内,因此端口2003必须在WLC和 CMX之间打开)
- 80 HTTP
- 443 HTTPS
- Internet Control Message Protocol (ICMP)
- •161、162简单网络管理协议(SNMP)

场景1. CMX上启用了超级定位,WLC上未启用。

在这种情况下,没有从WLC向CMX发送AoA消息。在WLC上启用Hyperlocation并检查CMX是否从 WLC收到端口2003上的AoA消息。

场景2. WLC不与CMX同步,但可访问。

在本例中,检查CMX和WLC上的网络时间协议(NTP)配置(检查日期)

在AP上运行命令# show capwap client rcb,查看以下内容:

Nexthop MAC Address	:	00	014.f15f.f7ca
HYPERLOCATION ADMIN STATE		:	1
WLC GATEWAY MAC		:	00:14:F1:5F:F7:CA
WLC HYPERLOCATION SRC PORT		:	9999
BLE Module State Remote Machine's IP : 0.0	.0.	: 0	ENABLED

## 相关信息

•检查CMX Hyperlocation故障排除核对表 — 。如果所有这些步骤都未指向问题,请访问思科支持论坛以寻求帮助(本文档和核对表中的输出绝对有助于您缩小论坛上的问题)或提交TAC支

持请求。

• <u>技术支持和文档 - Cisco Systems</u>