

Fujitsu Data Center
Management &
Automation (DCMA)

Wifi Networking

FUJITSU

shaping tomorrow with you

Human Centric
Innovation

Who we are



Japan's largest IT services provider and
No. 5 in the world.
(based on vendor revenue 2015)*

We do everything in ICT. We use our experience and the power of ICT to
shape the future of society with our customers.

156,000 Fujitsu people support customers in more than 100 countries.

FORTUNE named Fujitsu as one of 'the World's Most Admired Companies' for
the fourth consecutive year.

* Source: Gartner, "Market Share: IT Services, 2015" 06 April 2016 (GJ16139)



Alexander Zaeh
Senior Solution
Consultant

Fujitsu Distinguished Engineer

Our products and services

Technology Solutions



Services

Solution / SI

- Systems Integration (system construction, business applications)
- Consulting
- Front-end technologies (ATMs, POS systems etc.)

Infrastructure Services

- Outsourcing services (datacenters, ICT operation/management, SaaS, application operation/management, business process outsourcing, etc.)
- Network services (business networks, distribution of Internet/mobile content)
- System support services (maintenance and surveillance services for information systems and networks)
- Security solutions (installation of information systems and networks)

Systems platform

System Product

- Full range of servers (mainframe, UNIX, mission-critical x86 servers and other x86 servers)
- Storage systems
- Software (operating system, middleware)

Network Products

- Network management systems
- Optical transmission systems
- Mobile phone base stations



Mission is to manufacture products to improve the quality of patient care while also helping healthcare professionals bring time and cost efficiencies to their practice.

Sharing expertise across hospitals is helping to set the highest standards for enhancing patient and healthcare professional in:

- Safety
- Reducing medication errors
- Protecting the environment
- Providing quality clinical training, best practices and information support for healthcare professionals

WLC Management is Essential for Success

Manage autonomous delivery vehicle

Manage production processes

Flexible information delivery

Manage logistic processes

It's All in the Numbers

- 25 wireless LAN controllers (WLC) – each manage up to 557 access points
- Total of 1286 APs are managed
- Over 1400 alarms in first 7 days
- 60 alarms being suppressed
- 135 million events in 45 days
- 60 million events from 8 alarm types



Analyze Alarm Types in Pre-Production

| Type | Alarm Title | Abschalten | Anmerkung |
|--------------|--|------------|--|
| 6760010 | ACCESS POINT INTERFACE DOWN EXCEEDED CONFIGURED THRESHOLD | ja | |
| 6760002 | ACCESS POINTS DISASSOCIATED FROM CONTROLLER EXCEEDED THRESHOLD | ja | |
| 210e0c | AP ASSOCIATED SUCCESSFULLY AFTER REBOOT | ja | |
| 210e14 | AP CLIENT RADIO THRESHOLD EXCEEDED | ja | |
| 210e13 | AP INTERFACE DOWN | ja | |
| 4b6005e | BSN RADAR CHANNEL DETECTED | ja | |
| 6760008 | DOWNLOAD VOLUME FOR CLIENT EXCEEDED CRITICAL THRESHOLD | ja | Über Schwellwerte abgeklemmt. Braucht als Alarm nicht ausgeschaltet werden |
| 6760009 | DOWNLOAD VOLUME FOR CLIENT EXCEEDED MAJOR THRESHOLD | ja | Über Schwellwerte abgeklemmt. Braucht als Alarm nicht ausgeschaltet werden |
| 210e54 | KTS VOIP CALL FAILURE | ja | |
| 4b60007 | LRAD_DISASSOCIATED | ja | |
| 4b6000c | LRADIF_INTERFERENCE_PROFILE_FAILED | ja | |
| 4b6000a | LRADIF_LOAD_PROFILE_FAILED | ja | |
| 4b6000b | LRADIF_NOISE_PROFILE_FAILED | ja | |
| Cat38xxStack | OSPF INTERFACE STATE CHANGE | ja | |
| 210d26 | RADIUS REQUEST TIMEOUT | ja | |
| 210d23 | RADIUS SERVER GLOBAL DEACTIVATED | ja | |
| 210d25 | RADIUS SERVER WLAN DEACTIVATED | ja | |
| 4b60003 | STATION_ASSOCIATE_FAIL | ja | |
| 676000b | UPLOAD VOLUME FOR CLIENT EXCEEDED CRITICAL THRESHOLD | ja | Über Schwellwerte abgeklemmt. Braucht als Alarm nicht ausgeschaltet werden |
| 676000c | UPLOAD VOLUME FOR CLIENT EXCEEDED MAJOR THRESHOLD | ja | Über Schwellwerte abgeklemmt. Braucht als Alarm nicht ausgeschaltet werden |
| 6760006 | UPLOAD VOLUME FOR CLIENT EXCEEDED MINOR THRESHOLD | ja | Über Schwellwerte abgeklemmt. Braucht als Alarm nicht ausgeschaltet werden |
| 4b6002e | STATION_ASSOCIATE | ja no his | |
| 210e2c | CISCO LWAPP DOT11 CLIENT ASSOC TRAP | ja no his | |
| 210e27 | CISCO LWAPP DOT11 CLIENT MOVED TO RUN STATE | ja no his | |
| 210e2b | CISCO LWAPP DOT11 CLIENT SESSION TRAP | ja no his | |
| 210e2e | CISCO LWAPP DOT11 CLIENT MOVED TO RUN STATE NEW TRAP | ja no his | |
| 210e2d | CISCO LWAPP DOT11 CLIENT DE AUTHENTICATED TRAP | ja no his | |
| 4b60001 | STATION_DEAUTHENTICATE | ja no his | |
| 4b60000 | STATION_DISASSOCIATE | ja no his | |
| 210e5b | RRM RF GROUP MEMBER REMOVED | ja | |
| 210e5a | RRM RF GROUP MEMBER ADDED | ja | |
| 210e08 | RADIUS ACCT SERVER UNAVAILABLE | ja | |
| 210d38 | MOBILITY ANCHOR CONTROL PATH DOWN | ja | |

DHCP Addresses for AP

Console - NOC@FUJITSU Managed Network Monitoring Suite

File View Tools Help

Device Search: Go by IP Address

Navigation

Explorer Locater Users

| Name | ▼ | ▼ | ▼ |
|---------------------------------|---|---|----|
| IP Routing Manager | | | |
| MPLS Transport Manager | | | |
| Policy Manager (2) | | | |
| Service Performance Manager (2) | | | |
| VPLS Manager | | | |
| VPN Manager (2) | | | |
| bbmag337 (0x3f00000) | 2 | 2 | 74 |
| Chassis Manager (2) | | 1 | 62 |
| Enterprise VPN Manager (4) | | | |
| NOC@FUJITSU (47) | 1 | 2 | 74 |
| QoS Manager (15) | | | |
| Service Manager (3) | | | |
| TopOrg | | | |
| vPC Manager (1) | | | |
| WLC Manager (2) | 1 | | 3 |
| Cisco (25) | 1 | | 3 |
| BE01-WLC-01 (5) | | | |
| DE01-WLC-01 (25) | | | |
| DE03L-WLC-01 (5) | | | |
| DE03M-WLC-01 (29) | | | |
| DE03S-WLC-01 (21) | | | |
| DE06-WLC-01 (55) | | | 2 |
| DE08-WLC-01 (557) | 1 | | |
| DE08-WLC-02 (174) | | | |
| DE13-WLC-01 (178) | | | 1 |
| DE17-WLC-01 (4) | | | |
| DE20-WLC-01 (32) | | | |
| DE22-WLC-01 (4) | | | |
| DE25K-WLC-01 (72) | | | |
| DE28-WLC-01 (31) | | | |
| DE28N-WLC-01 (9) | | | |
| DE29-WLC-01 (20) | | | |
| DEX1-WLC-01 (49) | | | |
| NL01-WLC-01 (12) | | | |
| 172.29.160.233 | | | |
| 172.29.246.56 | | | |
| 172.29.247.116 | | | |
| 172.29.247.16 | | | |
| 172.30.245.208 | | | |
| 172.30.245.213 | | | |
| DE08P-WLC-Test-01 | | | |

Contents: Cisco of type WLCVendor

Alarms **Topology** List Events Information

Filter By: Severity

| Severity | Date/Time | Name | Address | Secure Domain | Type | Alarm Title | Landscapes |
|----------|--------------------------|-------------------|----------------|------------------|----------------|---|----------------------|
| Critical | 26.04.2017 23:58:12 MESZ | AP-DE08W-C2-E2-03 | 172.29.150 | Directly Managed | IP Device | DEVICE HAS STOPPED RESPONDING TO POLLS | bbmag337 (0x3f00000) |
| Minor | 27.04.2017 12:00:38 MESZ | DE13-WLC-01 | 172.29.160.230 | Directly Managed | Cisco 8500 WLC | An authenticationFailure trap received | bbmag337 (0x3f00000) |
| Minor | 21.04.2017 01:29:37 MESZ | DE06-WLC-01 | 172.29.247.119 | Directly Managed | Cisco 5500 WLC | Device has been rebooted or SNMP Agent has been initialized | bbmag337 (0x3f00000) |
| Minor | 21.04.2017 01:11:10 MESZ | DE06-WLC-01 | 172.29.247.119 | Directly Managed | Cisco 5500 WLC | SCHEDULED RESET NOTIFICATION | bbmag337 (0x3f00000) |

Component Detail: AP-DE08W-C2-E2-03 of type IP Device

Alarm Details Information **Impact** Host Configuration Root Cause Interfaces Performance Alarm History Neighbors Events Path View SDN VirtualOverlay SDN ServiceView

DEVICE HAS STOPPED RESPONDING TO POLLS

26.04.2017 23:58:12 MESZ

Device AP-DE08W-C2-E2-03 of type AccessPoint has stopped responding to polls and/or external requests. An alarm will be generated.

Severity Critical

Impact 1

Acknowledged [set](#)

Clearable No

Trouble Ticket ID [set](#)

Assignment [set](#)

Landscapes bbmag337 (0x3f00000)

Status [set](#)

Web Context URL

Source SPECTRUM

Change Owner SPECTRUM

Alarm Modified Time 27.04.2017 08:31:05 MESZ

UIM Alarm Id

Symptoms Device has stopped responding to polls.

Probable Cause

- 1) Device Hardware Failure.
- 2) Cable between this and upstream device broken.
- 3) Power Failure.
- 4) Incorrect Network Address.
- 5) Device Firmware Failure.

Actions

- 1) Check power to device.
- 2) Verify status lights on device.
- 3) Verify reception of packets.
- 4) Verify network address in device and SPECTRUM.
- 5) Cycle power on device and recheck.
- 6) If above fails, call repair.

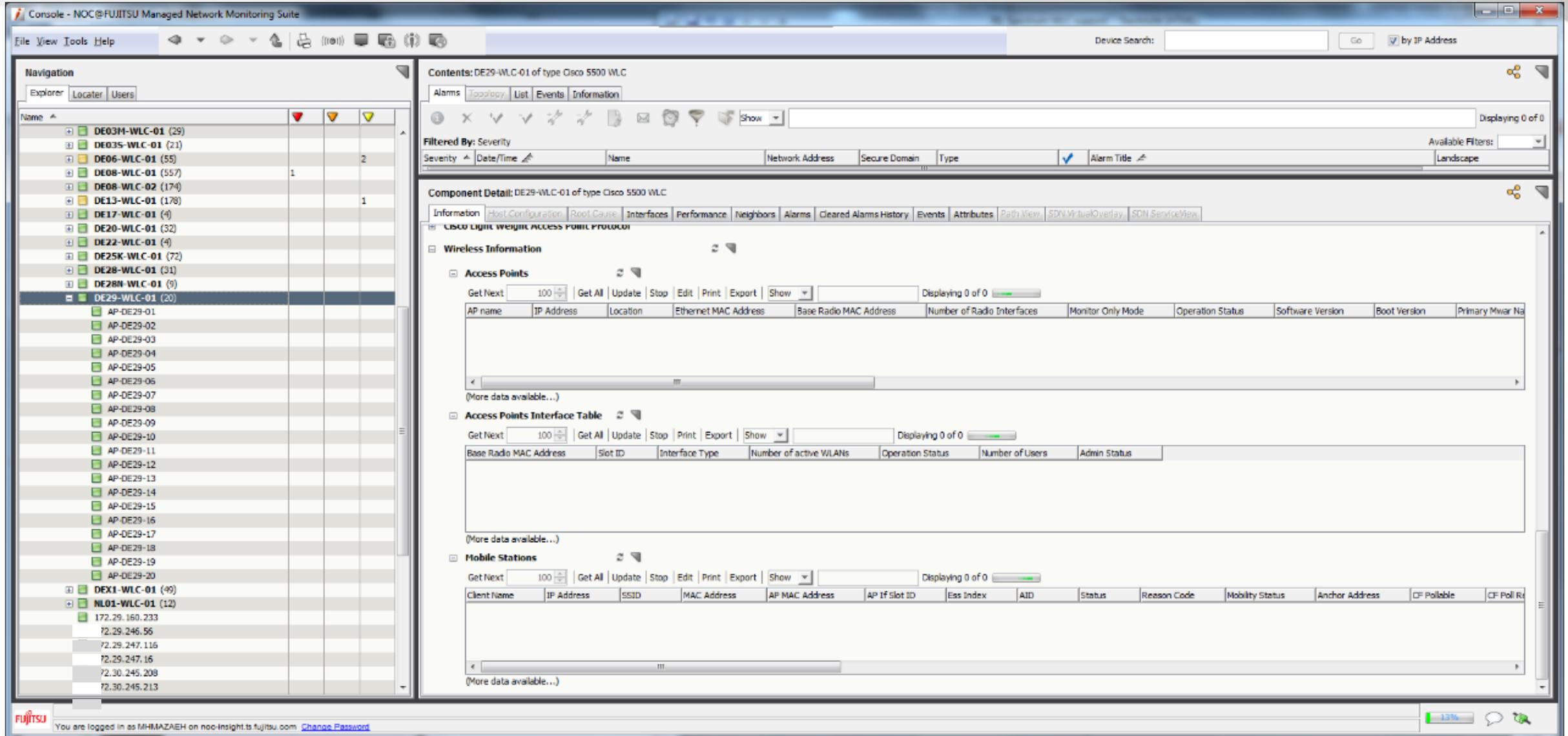
You are logged in as MHMAZAEH on noc-insight.ts.fujitsu.com [Change Password](#)

19%

9

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Wireless Information at WLC and AP



The screenshot displays the NOC@FUJITSU Managed Network Monitoring Suite interface. The left sidebar shows a navigation tree with various WLC and AP devices. The main content area is titled "Contents: DE29-WLC-01 of type Cisco 5500 WLC" and shows a "Wireless Information" section. This section includes three sub-panels: "Access Points", "Access Points Interface Table", and "Mobile Stations". Each sub-panel has a "Get Next" dropdown set to 100 and a "Displaying 0 of 0" indicator. The "Access Points" table has columns for AP name, IP Address, Location, Ethernet MAC Address, Base Radio MAC Address, Number of Radio Interfaces, Monitor Only Mode, Operation Status, Software Version, Boot Version, and Primary Mwar Na. The "Access Points Interface Table" has columns for Base Radio MAC Address, Slot ID, Interface Type, Number of active WLANs, Operation Status, Number of Users, and Admin Status. The "Mobile Stations" table has columns for Client Name, IP Address, SSID, MAC Address, AP MAC Address, AP If Slot ID, Eas Index, AID, Status, Reason Code, Mobility Status, Anchor Address, CF Pollable, and CF Poll Re. The bottom status bar shows the user is logged in as MHMAZAEH on noc-insight.fujitsu.com.

AP and WLC Container

The screenshot displays the NOC@FUJITSU Managed Network Monitoring Suite interface. The left sidebar shows a navigation tree with a table of network elements:

| Name | 1 | 2 | 74 |
|----------------------|---|---|----|
| NOC@FUJITSU (47) | | | |
| Argentina (1) | | | |
| Australia (1) | | | |
| Austria (1) | | | |
| Belgium (1) | | | 1 |
| Brazil (1) | | | |
| Bulgaria (1) | | | |
| China (2) | | | |
| Colombia (1) | | | |
| CzechRepublic (1) | | | |
| Denmark (1) | | | |
| Finland (1) | | | |
| France (2) | | | |
| Germany (17) | 1 | 1 | 70 |
| DE01-BadArolsen (19) | | 1 | 5 |
| DE03-Berlin (3) | | | |
| DE06-Glandorf (27) | | | 6 |
| DE08-Melsungen (17) | 1 | | 40 |
| DE08-RZ (41) | | | 3 |
| DE08-WLAN (737) | 1 | | |
| 172.30.245.208 | | | |
| -172.30.245.213 | | | |
| ap-BG01-01_old | | | |
| AP-DE08A-B01-01 | | | |
| AP-DE08A-H-EG-01 | | | |
| AP-DE08A-H-EG-02 | | | |
| AP-DE08A-H-Halle-01 | | | |
| AP-DE08A-H-Halle-02 | | | |
| AP-DE08A-H-Halle-03 | | | |
| AP-DE08A-H-OG-01 | | | |
| AP-DE08A-H-OG-02 | | | |
| AP-DE08A-HH-Eder-01 | | | |
| AP-DE08A-HH-Eder-02 | | | |
| AP-DE08A-HH-Eder-03 | | | |
| AP-DE08A-HH-Eder-04 | | | |
| AP-DE08A-HH-EG-01 | | | |
| AP-DE08A-HH-EG-02 | | | |
| AP-DE08A-HH-EG-03 | | | |
| AP-DE08A-HH-EG-04 | | | |
| AP-DE08A-HH-EG-05 | | | |
| AP-DE08A-HH-EG-06 | | | |

The main area shows a network topology diagram titled "Contents: DE08A of type LAN". It features a central switch (DE08A) connected to numerous AP devices (WLAN containers) and other network components. The diagram is zoomed in at 50%.

At the bottom, the "Component Detail: DE08A of type LAN" section is visible, showing a 3D icon of a switch and the text "DE08A LAN".

At the bottom left, the Fujitsu logo and login information are displayed: "You are logged in as MHMAZAEH on noc-insight.fujitsu.com Change Password". At the bottom right, a battery status indicator shows 15%.

Light Reporting

Console - NOC@FUJITSU Managed Network Monitoring Suite

File View Tools Help

Device Search: Go by IP Address

Navigation

Explorer Locater Users

Name

- Enterprise VPN
- Global Collections
- Integrations
- Models
- MPLS Transport Manager
- Multicast
- NAME
- Network Configuration Manager
- NPC
- Policy Manager
- Ports
- Privilege Roles
- Quality of Service
- Remote Operations
- Router Redundancy
- SANM
- Schedules
- SDN Manager
- Secure Domain Manager
- Services
- SLAs
- SPM
- SucheName
- System & Application Monitoring
- Telco EMS Manager
- UIM Manager
- User defined Management
- Virtual Host Management
- VLAN
- vPC Manager
- VPLS Manager
- VPN
- whoDELMYFolder
- WLC Manager
 - Access Points associated
 - To WLC IP
 - To WLC Name
 - All APs
 - All WLCs

Contents: WLC Manager -> All WLCs

Results

Showing 25 of 25 Thursday, April 27, 2017 12:06:13 PM CEST

| Condition | Name | IPs | Secure Domain | Manufacturer | Model Class | MAC Address | Type | Landscape |
|-------------|---------------|-----|------------------|---------------------|--------------------|-------------------|-----------------|----------------------|
| Normal | DE01-WLC-01 | | Directly Managed | Cisco Systems, Inc. | Wireless LAN Co... | a8:9d:21:03:a6:64 | Cisco 5500 ... | bbmag337 (0x3f00000) |
| Normal | BE01-WLC-01 | | Directly Managed | Cisco Systems, Inc. | Wireless LAN Co... | c0:8c:60:c7:06:84 | Cisco AirCt ... | bbmag337 (0x3f00000) |
| Normal | DE25K-WLC... | | Directly Managed | Cisco Systems, Inc. | Wireless LAN Co... | 30:f7:0d:30:c0:a4 | Cisco 5500 ... | bbmag337 (0x3f00000) |
| Minor | DE06-WLC-01 | | Directly Managed | Cisco Systems, Inc. | Wireless LAN Co... | f4:cf:e2:84:89:44 | Cisco 5500 ... | bbmag337 (0x3f00000) |
| Normal | 172.29.160... | | Directly Managed | | Wireless LAN Co... | 10:05:ca:bf:36:29 | IP Device | bbmag337 (0x3f00000) |
| Normal | DE08-WLC-02 | | Directly Managed | Cisco Systems, Inc. | Wireless LAN Co... | 28:6f:7f:55:03:22 | Cisco 8540 ... | bbmag337 (0x3f00000) |
| Normal | DE08-WLC-01 | | Directly Managed | Cisco Systems, Inc. | Wireless LAN Co... | 10:05:ca:bf:36:a6 | Cisco 8500 ... | bbmag337 (0x3f00000) |
| Normal | DE03L-WLC-01 | | Directly Managed | Cisco Systems, Inc. | Wireless LAN Co... | 54:7c:69:9b:e3:c4 | Cisco AirCt ... | bbmag337 (0x3f00000) |
| Normal | DE17-WLC-01 | | Directly Managed | Cisco Systems, Inc. | Wireless LAN Co... | 54:7c:69:9b:d8:04 | Cisco AirCt ... | bbmag337 (0x3f00000) |
| Normal | DE20-WLC-01 | | Directly Managed | Cisco Systems, Inc. | Wireless LAN Co... | 84:80:2d:f8:38:c4 | Cisco AirCt ... | bbmag337 (0x3f00000) |
| Normal | 172.30.245... | | Directly Managed | | Wireless LAN Co... | | IP Device | bbmag337 (0x3f00000) |
| Maintenance | DE08P-WLC... | | Directly Managed | Cisco Systems, Inc. | Wireless LAN Co... | 24:e9:b3:47:90:84 | Cisco AirCt ... | bbmag337 (0x3f00000) |
| Normal | DE03M-WLC... | | Directly Managed | Cisco Systems, Inc. | Wireless LAN Co... | a8:9d:21:03:91:44 | Cisco 5500 ... | bbmag337 (0x3f00000) |
| Normal | DE28-WLC-01 | | Directly Managed | Cisco Systems, Inc. | Wireless LAN Co... | e0:2f:6d:5d:db:c4 | Cisco 5500 ... | bbmag337 (0x3f00000) |
| Normal | DE28N-WLC... | | Directly Managed | Cisco Systems, Inc. | Wireless LAN Co... | 00:08:2f:10:60:44 | Cisco AirCt ... | bbmag337 (0x3f00000) |
| Normal | 172.29.246.56 | | Directly Managed | | Wireless LAN Co... | a8:9d:21:03:a4:af | IP Device | bbmag337 (0x3f00000) |
| Normal | 172.30.245... | | Directly Managed | | Wireless LAN Co... | | IP Device | bbmag337 (0x3f00000) |
| Normal | DE03S-WLC... | | Directly Managed | Cisco Systems, Inc. | Wireless LAN Co... | f4:cf:e2:94:68:04 | Cisco 5500 ... | bbmag337 (0x3f00000) |
| Minor | DE13-WLC-01 | | Directly Managed | Cisco Systems, Inc. | Wireless LAN Co... | 10:05:ca:bf:36:86 | Cisco 8500 ... | bbmag337 (0x3f00000) |
| Initial | 172.29.247.16 | | Directly Managed | | Wireless LAN Co... | f4:cf:e2:84:89:cf | IP Device | bbmag337 (0x3f00000) |
| Normal | DE29-WLC-01 | | Directly Managed | Cisco Systems, Inc. | Wireless LAN Co... | e0:2f:6d:5d:d5:04 | Cisco 5500 ... | bbmag337 (0x3f00000) |
| Normal | DEX1-WLC-01 | | Directly Managed | Cisco Systems, Inc. | Wireless LAN Co... | f4:cf:e2:84:87:e4 | Cisco 5500 ... | bbmag337 (0x3f00000) |

Component Detail: DE28N-WLC-01 of type Cisco AirCt 2504K9

Information Host Configuration Root Cause Interfaces Performance Neighbors Alarms Cleared Alarms History Events Attributes Path View SDN Virtual Overlay SDN Service View

- Cisco License Management
- Cisco Light Weight Access Point Protocol
 - AAA Server
 - LDAP Server
 - 802.11
 - Mesh Node Statistics
 - WLAN Configuration
 - Access Control List
 - Thresholds
- Wireless Information

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- Customer reports must be customized
- Placement of AP in the universe needs to be adjusted
- Authentication trap alarm must be customized
- Update to CA Spectrum 10.2.1

Fujitsu Data Center Management and Automation

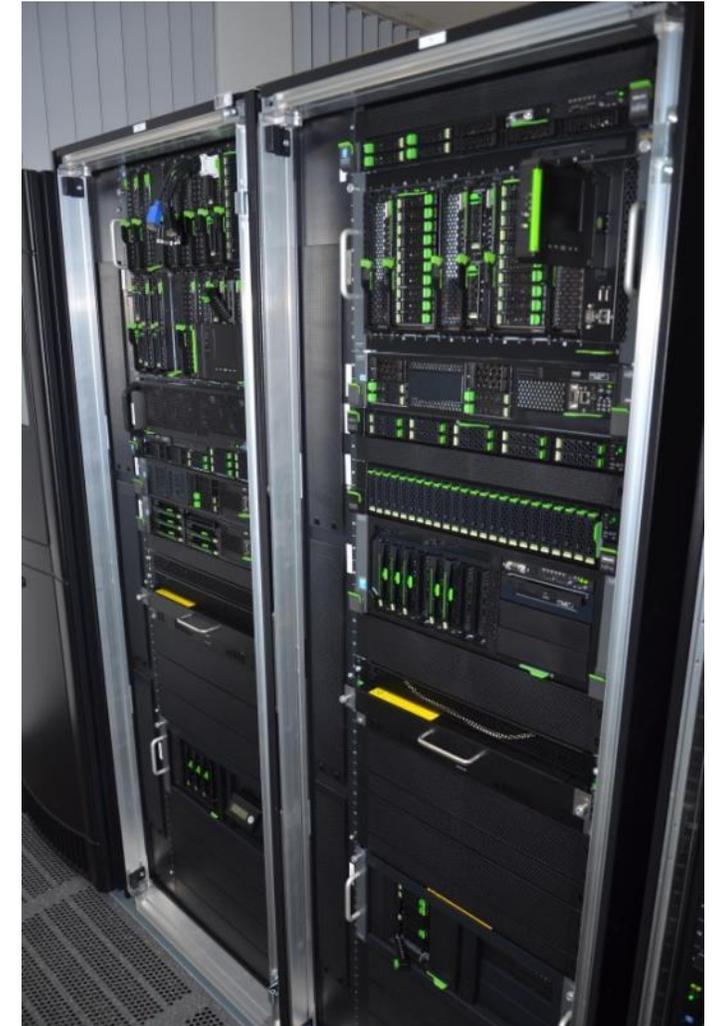
Global Demo Center - Frankfurt/Germany

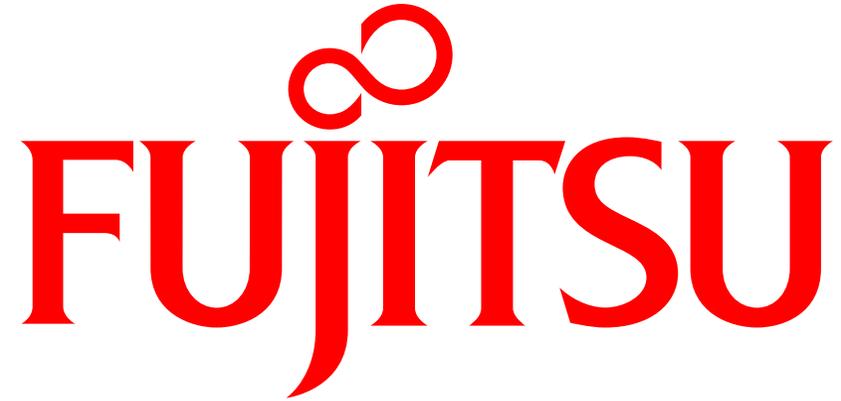


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- Service Quality Management
- Unified IT infrastructure management
- Data center infrastructure management
- Fujitsu ServerView

- Request your demo onsite or remote at <http://www.fujitsu.com/fts/solutions/business-technology/data-center-management-automation/demo-center/form.html>





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Thank you