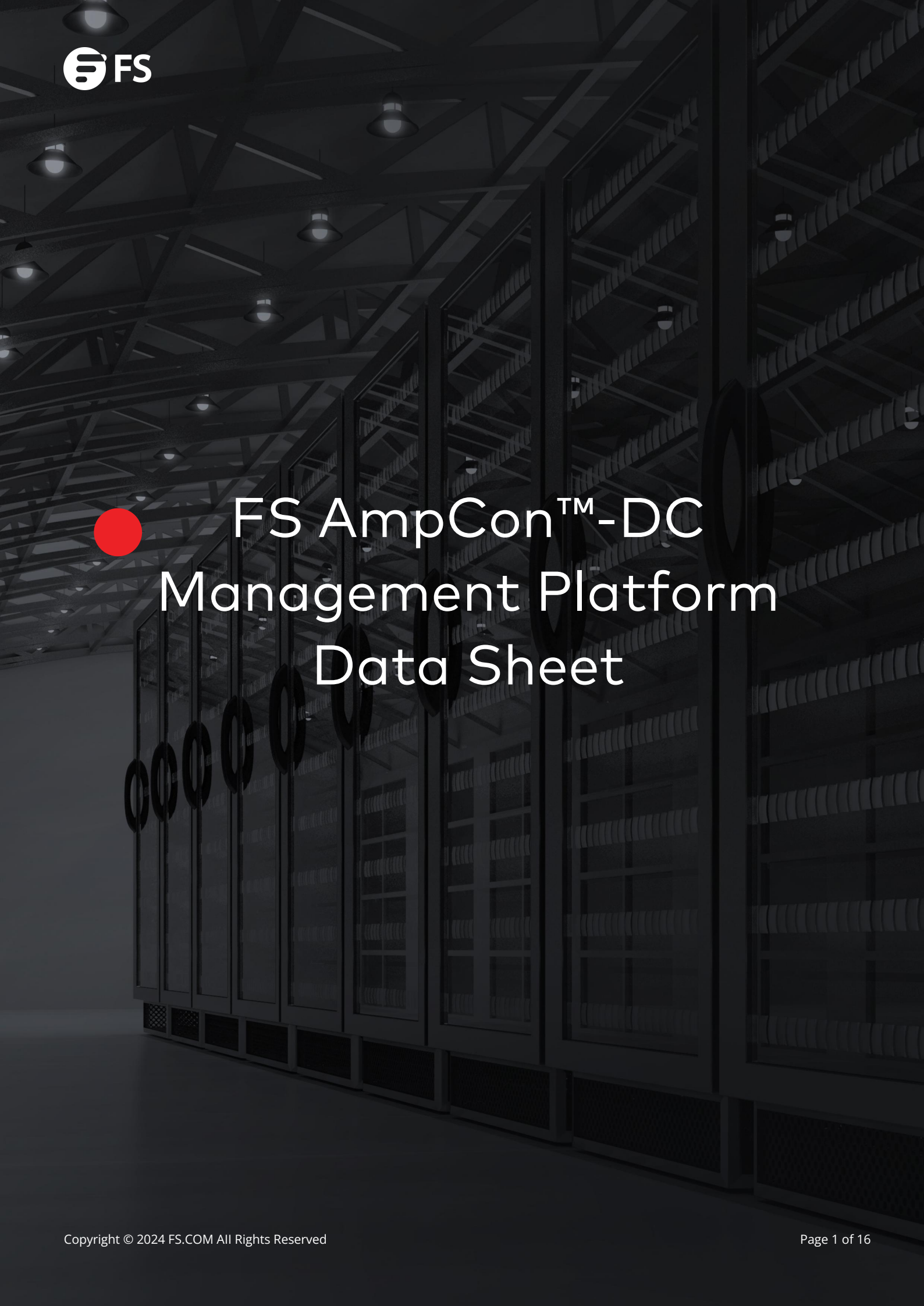


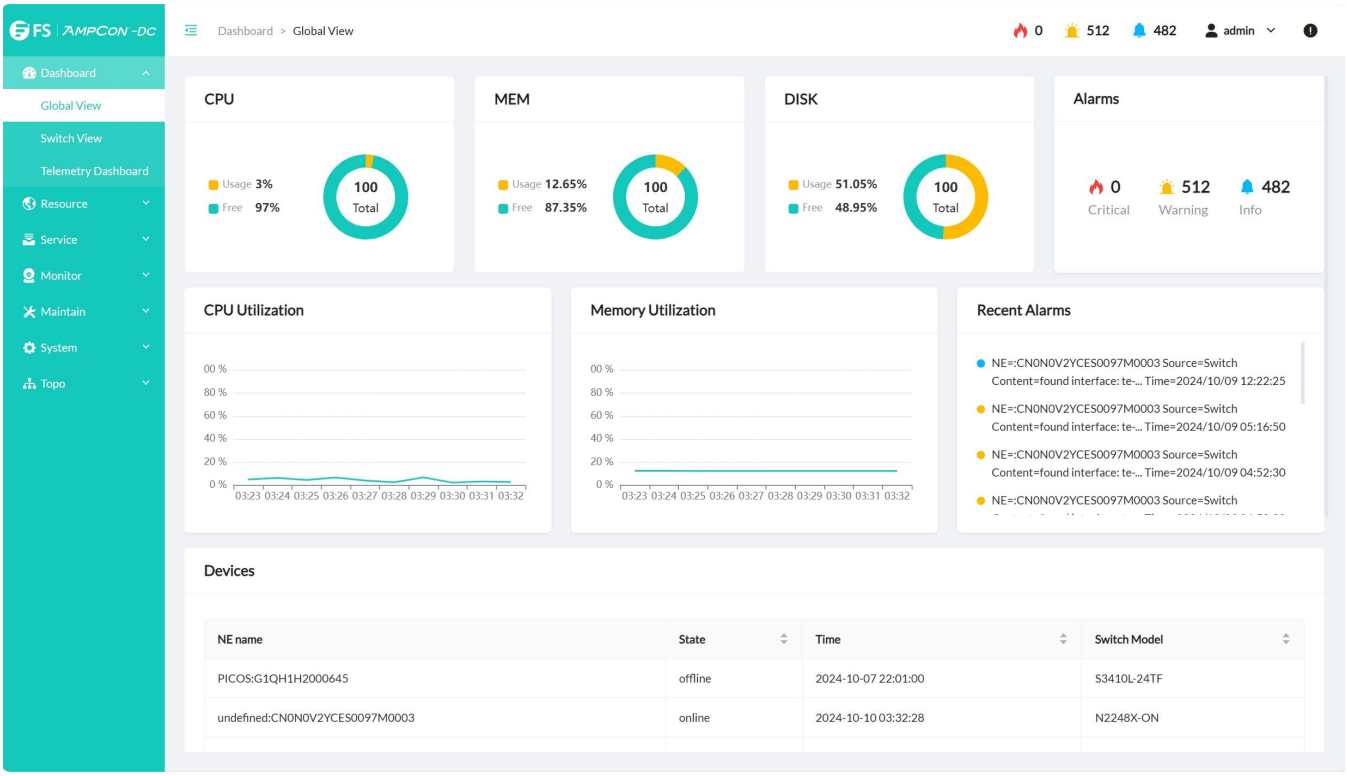
FS AmpCon™-DC Management Platform Data Sheet

Contents

Product Description

AmpCon™-DC is a management platform designed for PicOS® data center switches, offering automated Zero Touch Provisioning (ZTP), real-time telemetry monitoring, topology auto-discovery, and automated lifecycle management. Deployed as a software appliance on a virtual machine (VM) or Docker, AmpCon™-DC operates seamlessly in data center or cloud environments.

With an intuitive web-based UI, AmpCon™-DC automates routine workflows, eliminating costly downtime and time-consuming manual tasks. This enables you to efficiently deploy, orchestrate, and manage highly available HPC and data center networks at scale.



Highlights

- Zero-Touch Provisioning for Easy, Secure Scaling
- Support Telemetry for Real-Time Network Monitoring
- Topology Auto-Discover for Automatic and Visual Management
- Ansible Playbooks for Automated Backups and Upgrades
- Supports Docker, KVM, VMware, and Nutanix AHV Deployments
- Remote Switch Deployment and Management at Scale
- Support Configuration and License Management

Key Features

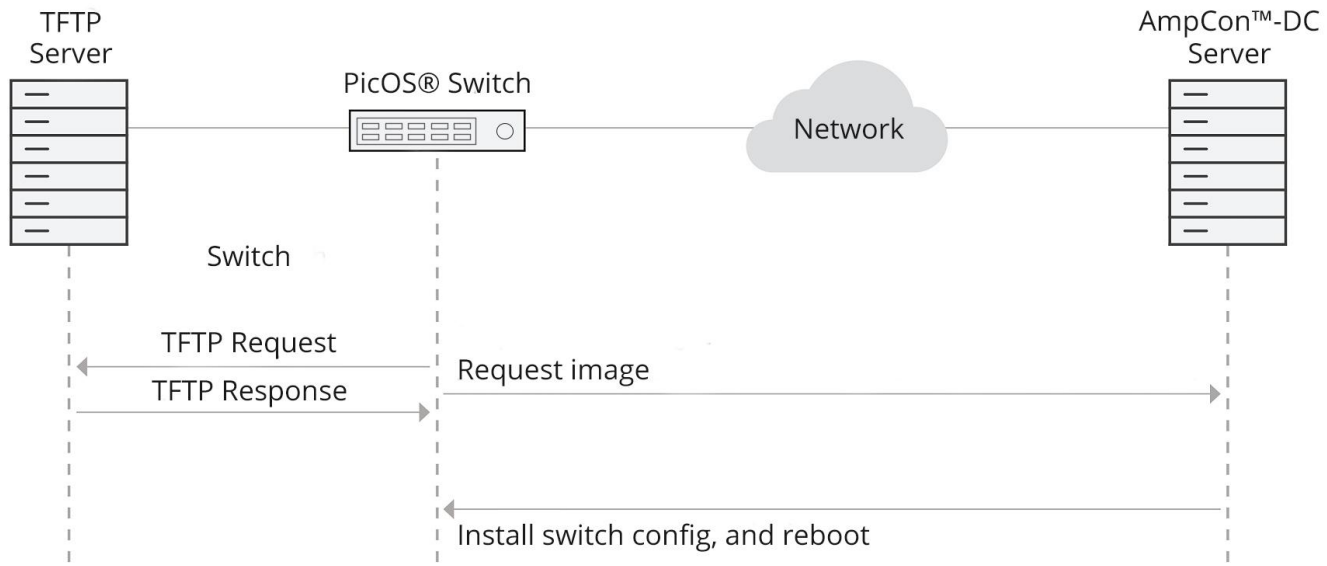
Zero Touch Provisioning

After you plug in the switch, DHCP automatically provides the switch with an IP address and the address of a provision script that is obtained from AmpCon™-DC server. The switch automatically runs the script to find the AmpCon™-DC server, register with it, and then complete the PicOS® installation without manual intervention.

Importantly, no experienced network personnel are required at the remote site; anyone who can install the switch in the right place and plug it in will do. The AmpCon™-DC Server includes a component called the Configuration Manager. Your network team uses it to create a standard configuration to be deployed on all switches, along with any variations specific to different sites or regions. All configurations are tied to specific switches by the switch serial number (or Service Tag) and stored in a database.

After registering with the AmpCon™-DC Server, each switch then downloads its appropriate configuration. At the same time, the switch will access another AmpCon™-DC Server component, the License Manager, which will access the customer's account on the License Portal to generate a license key and install it on the switch.

Finally, the switch runs a script to automatically reboot, apply (and validate) the new configuration, update its status in the configuration database and join the network. From your perspective, all these switch configurations happen with the touch of a button in the AmpCon™-DC UI. Now it's possible to deploy dozens or hundreds of switches to far-flung sites while most, if not all, of your network team stays at home and monitors the process centrally.

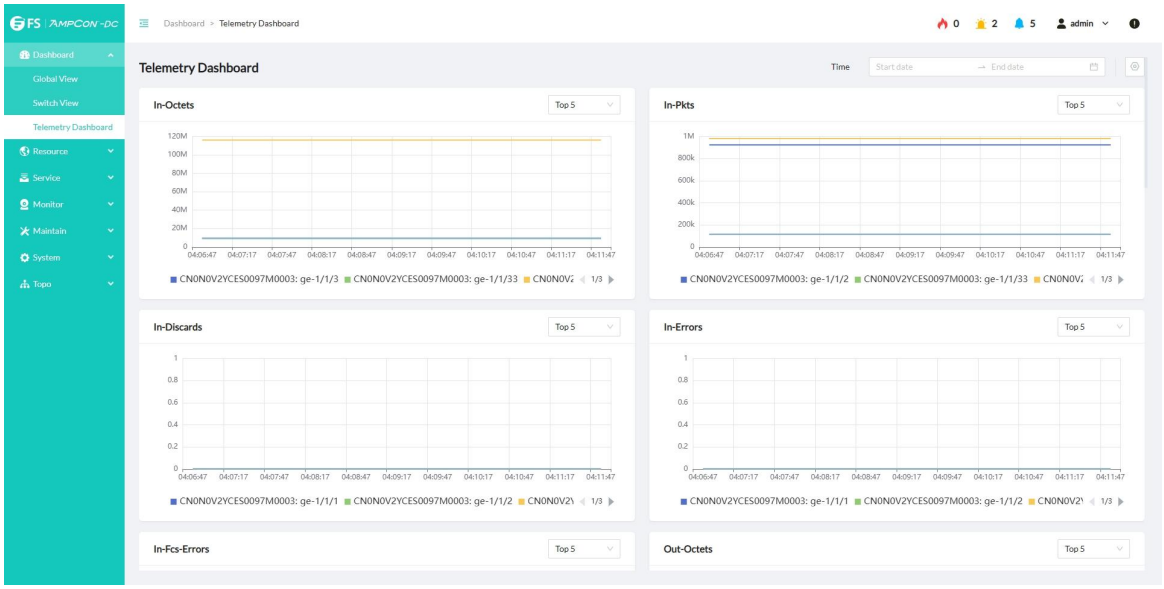


Telemetry

AmpCon™-DC Telemetry provides network validation tools to monitor network performance and conditions. It also captures and streams rich, real-time network telemetry information, application workload usage, and system configuration to on-premises databases for further analysis.

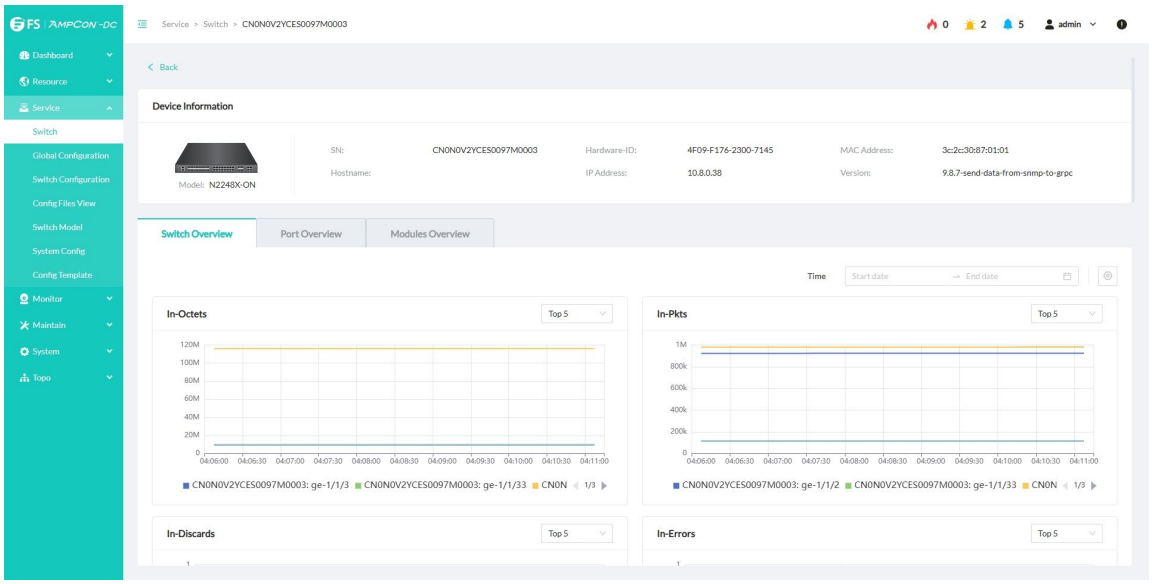
Comprehensive Data Collection

AmpCon™-DC collects real-time data from various network devices,including switch port stats, connected modules information and high-performance network statistics, ensuring admins have the insights needed for quick decisions and network adjustments.



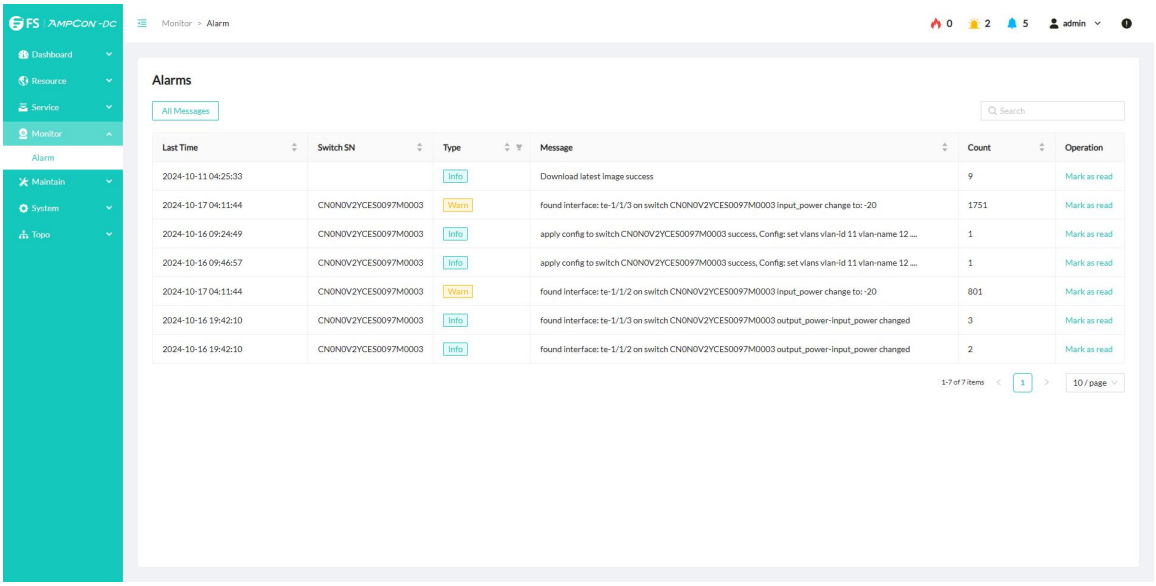
Real-time Performance Monitoring

By tracking performance metrics in real time, such as port status, error count, and port traffic, telemetry helps admins identify bottlenecks, optimize configurations, and ensure efficient resource use for optimal network performance.



Predictive Maintenance

AmpCon™-DC uses real-time monitoring data to predict equipment failures and performance anomalies, issuing immediate alerts. This allows the operations team to take corrective actions before issues are escalated, reducing downtime risk and ensuring data center network continuity and reliability.



Topology Auto-Discovery

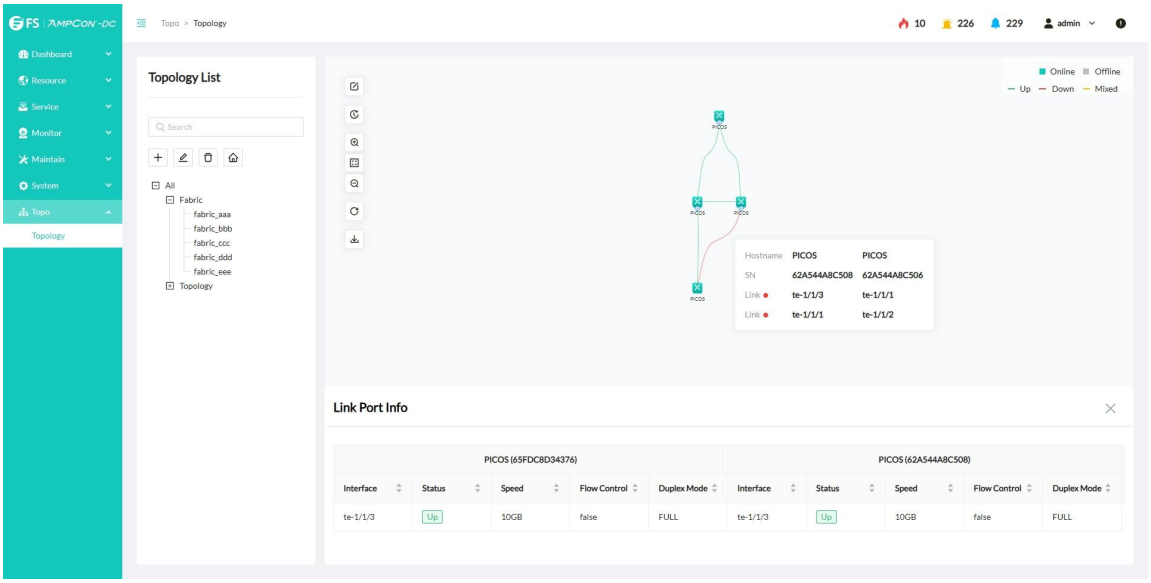
AmpCon™-DC supports topology auto-discovery for automated identification and visualization of the network structure. It provides a map view to display all locations. You can use the map view to pull up any location and drill down into an individual switch, right to the port level, to check port stats and overall health of the switch. In this way, network management and maintenance can be simplified.

Topology Planning

AmpCon™-DC supports automatic discovery of neighboring information to generate a topology map after switches are added. You can manually plan the topology and customize the network structure layout according to actual needs.

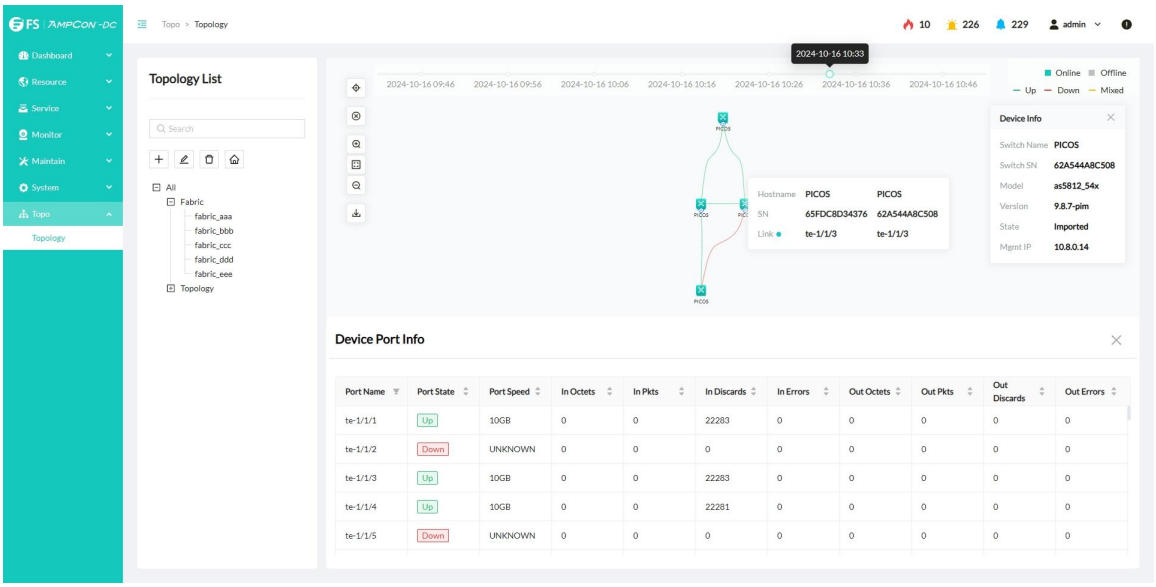
Real-time Topology Information Display

AmpCon™-DC dynamically shows the current network status, which reflects changes such as device online status and link faults in real time. By clicking on a device or link, you can see detailed statistical information.



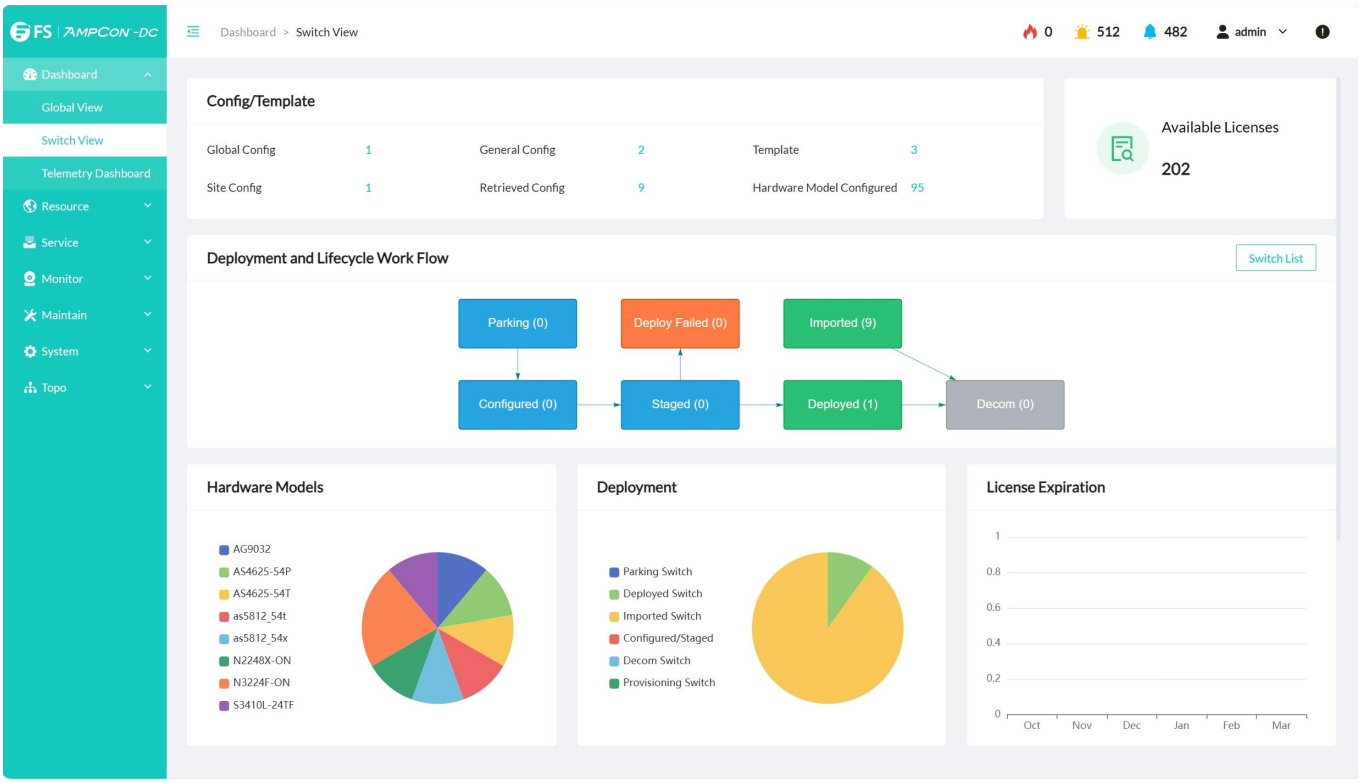
Display Historical Topology Information

By selecting a timeline, you can see the network topology and device link status at different times. This allows you to analyze historical topologies and trace problems more effectively.



Lifecycle Management and Automation

Once installed, AmpCon™-DC also simplifies the ongoing management of Pica8 PicOS Software Switches including configuration management, switch inventory, software updates and more.



Task	Manual	AmpCon™-DC Automation
Custom Workflow (e.g. Add VLAN)	7 hours	20 minutes
Upgrade PicOS® Software Switches	1-2 days	Overnight, in background
Config Update (e.g. Change Syslog Server)	7 hours	< 20 minutes
Daily Compliance Check	1 Full Time Engineer	Automated

Time Savings for a Block of 100 Switches

Configuration Management

AmpCon™-DC includes native configuration management capabilities, enabling you to push out an update to a single switch or to an entire group of switches. It eliminates the need to pull up and edit configurations one by one, reducing the likelihood of errors, and simplifies the process by enabling it to be done from the same centralized tool; no need to deal with the added expense or headache of a third-party tool.

In practice, the configuration management feature can greatly simplify the job of updating switches to deal with a new class of device, such as security devices to protect Internet of Things sensors. Network administrators can detail how the network should treat the security devices, perhaps putting them on their own VLAN, and detail where traffic from the devices is allowed to go. With a single command, the update can then be pushed out to appropriate network switches.

AmpCon™-DC greatly simplifies the job of detailing just what level of network access and priority each class of device should get – and then pushing the update at once to all relevant switches.

Configuration Backup, Compliance, And Rollback

Once the desired configurations are set and the network is stable, you might want to make sure that accidental changes don't disrupt operations. When you make a configuration change such as adding devices or a VLAN, it is important to back up your configuration.

AmpCon™-DC makes configuration backup easy by automating and scheduling configuration backup on a specified date and time and saving the last N backups as you need. You can use the backup configuration to recover quickly from a crash or corruption of a switch. In addition, you can mark a specific backup instance as the Golden Config. The Golden Config will never be deleted and is used by default as the configuration to roll back a switch to a stable configuration when the switch operation is compromised. You can also use the Golden Config as the basis to run an automated compliance check to verify whether the network is operating as designed.

Switch Inventory

AmpCon™-DC also supports switch inventory features. Here again, third-party tools are available to support this capability, but they add expense. In addition to the software, such tools typically run on a Windows Server Enterprise Edition machine, which means additional server licensing costs.

Not so with AmpCon™-DC which, as previously noted, deploys in minutes on a virtual machine. It provides detailed inventory of all switches, including switch hardware details, software version, configuration and more.

License Updates

AmpCon™-DC can automate the process of checking and updating the switch licenses with new Support entitlements. A License Audit task checks whether a group of specified switches has valid licenses and creates a report of the license status including the support expiration date and other details. The License Action task automatically updates the license keys on all switches whose support is due to expire in the next 30 days and logs the result to a report, which you can examine or download.

RMA Replacements

AmpCon™-DC incorporates a unique workflow to help with return merchandise authorization (RMA) replacements. When hardware of a switch fails and is replaced with new switch hardware, the RMA feature takes the configurations from the failed switch hardware, updates the serial number of the new switch, and pushes the configurations to the new switch to bring it up seamlessly in the network.

Flexible Ansible Extensions

While AmpCon™-DC provides commonly used features and functions network teams need for day-to-day operations, it also enables companies to add capabilities they may require by writing Ansible playbooks to create customized 5 workflows. If there's a certain routine your company follows on a regular basis, you can build a workflow to automate it, such as by using as series of "if/then" statements.

Additionally, Pica8 offers a series of Ansible playbooks, which are templates for automating routines including:

- Compliance and consistency checks, to ensure switches stay in compliance with industry regulations that require a certain configuration to maintain proper security and privacy

- Connectivity check for PicOS® Software Switches

- Network operation and remediation routines, including dynamic policy enforcement

Simplified Software Switch Upgrades

The nature of PicOS® itself makes it simpler to manage switches compared to other legacy network operating system (NOS) of switches or routers. Because it's Linux-based, PicOS® is compartmentalized, which means you can update or change one component or aspect without affecting the other components. For example, if you're pushing out a security patch, that affects only the security component of the NOS; you don't have to replace the entire software/firmware image.

If you're familiar with legacy NOSs such as Cisco IOS, you know that's not the case. Any update requires a wholesale software/firmware change, with all the attendant disruption that comes with it: putting the change through a qualification cycle, lab testing, the works.

By contrast, if you're making a change to PicOS that has nothing to do with the movement of data, such as a security change, you don't need to go through all of those steps.

AmpCon™-DC makes it easy and error-free to upgrade your switches to the latest PicOS® version. When you are ready to go, you simply schedule a job identifying the group of switches, the new software image, and the time window when you want the upgrades to be executed. The task executes automatically in the background and captures the results in a logfile that can be checked for the details and updates the task status on completion.

Additional Features

• RBAC (Role Based Access Control for users)
You can authenticate user logins through a TACACS+ server, which also determines their access permissions based on their roles. If the TACACS+ server can't be reached from AmpCon™-DC, you can log in to the AmpCon™-DC UI with local users that are defined in AmpCon™-DC.

• Parking Lot
You can use parking lot to manage switches that have been shown in the network and registered with the AmpCon™-DC server but haven't been configured by the administrator.

• Setting Up Groups (of switches)
To perform switch lifecycle operations more conveniently, you can organize switches in groups by region, location, building, and more.

• Importing Switches
For those switches that were not originally deployed through AmpCon™-DC, you can import them directly to AmpCon™-DC to manage them.

• Decommission Workflow
To shut a switch down temporarily and then redeploy it in another location, you can decommission the switch in the AmpCon™-DC UI.

• Operational Logs
You can use operational logs to track all activities and troubleshoot issues by drilling down and analyzing issues.

• Monitoring
You can get an overview of all switches or drill down to a switch to check its status and metrics such as port stats.

Product Specifications

Parameter	AmpCon™-DC
Clock Speed	2.0 GHz or faster
Number of Cores	4 CPU cores
Memory	16 GB
Hard Disk	512 GB
Operating Systems	Ubuntu 22.04 x86
Browser	Chrome 98, Edge 98, Firefox 94 and above
Deployment Method	Docker container, KVM(QCOW2), VMware(OVA, OVF), Nutanix AHV
Max Number of Switches Supported	1000
Max Number of Registered Users	1000
Max Number of Online Users	100
System Log Storage Duration	2 months
Operation Log Storage Duration	2 months
Current Alerts Max Storage	Unlimited
Historical Alerts Max Storage	2 months

Product Line under AmpCon™-DC Management

For more manageable devices, please refer to the AmpCon™-DC compatibility documentation and stay tuned as we continue to expand our range of compatible models.

FS Hardware Models

Product	Product Description
N5850-48X6C	N5850-48X6C, 48-Port Ethernet L3 Data Center Switch, 48 x 10G RJ-45, with 6 x 100G QSFP28 Uplinks, PicOS®, Support MLAG, Broadcom Chip
N5850-48S6Q	N5850-48S6Q, 48-Port Ethernet L3 Data Center Switch, 48 x 10Gb SFP+, with 6 x 40Gb QSFP+ Uplinks, PicOS®, Support MLAG, Broadcom Chip
N8550-48B8C	N8550-48B8C, 48-Port Ethernet L3 Data Center Switch, 48 x 25Gb SFP28, 2 x 10Gb SFP+, with 8 x 100Gb QSFP28 Uplinks, PicOS®, Support MLAG, Broadcom Chip
N8550-32C	N8550-32C, 32-Port Ethernet L3 Data Center Switch , 32 x 100Gb QSFP28, 2 x 10Gb SFP+, PicOS®, Support MLAG, Broadcom Chip
N8560-32C	N8560-32C, 32-Port Ethernet L3 Data Center Switch, 32 x 100Gb QSFP28, PicOS®, Support MLAG, Broadcom Chip
N8550-64C	N8550-64C, 64-Port Ethernet L3 Data Center Switch , 64 x 100Gb QSFP28, PicOS®, Support MLAG, Broadcom Chip
N9550-32D	N9550-32D, 32-Port Ethernet L3 Data Center Switch, 32 x 400Gb QSFP-DD, PicOS®, Broadcom Chip

Ordering Information

FS P/N	Product Description
LIS-AMPCON-DC-FPSW-Foundation-90D	90-Day Free Trial of AmpCon™-DC Management Platform for PicOS® Data Center Switches
LIS-AMPCON-DC-FPSW-Foundation-1Y	1 Year Service of AmpCon™-DC Management Platform for PicOS® Data Center Switches (Per Device)
LIS-AMPCON-DC-FPSW-Foundation-3Y	3 Years Service of AmpCon™-DC Management Platform for PicOS® Data Center Switches (Per Device)
LIS-AMPCON-DC-FPSW-Foundation-5Y	5 Years Service of AmpCon™-DC Management Platform for PicOS® Data Center Switches (Per Device)

More Information

For more information about the AmpCon™-DC, contact your account manager or visit https://www.fs.com/c/ampcontm-dc-platform-4227.

Document History

New or revised topic	Described in	Date
Updates to FS AmpCon™-DC Data Sheet	Updated all	11/25/2024

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