



Catalyst 8500 Series Edge Platforms

Platform

Q: What are the Cisco Catalyst™ 8500 Series Edge Platforms?

A: The Catalyst 8500 Series Edge Platforms are the evolution of the Cisco® ASR 1000 Series Aggregation Services Routers. Designed for all routing use cases where the ASR 1000 Series was deployed, the Catalyst 8500 Series can also be used for Secure Access Service Edge (SASE), Software-Defined WAN (SD-WAN), and 5G-based architectures. Within the Catalyst 8500 Series, three platforms (the C8500-20X6C, C8500-12X4QC, and C8500-12X) are powered by an all-new Cisco QuantumFlow Processor™ 3.0. The C8500L-8S4X platform is powered by a multicore System-on-Chip (SoC) engine using advanced flow-based forwarding algorithms. These platforms are purpose-built for high-performance SD-WAN and offer feature parity with existing ASR 1000 Series platforms.



Q: What is the portfolio transition from the ASR 1000 Series to the Catalyst 8500 Series Edge Platforms?

A: The C8500-12X4QC is the successor to the ASR1002-HX. The C8500-12X is the successor to the ASR 1001-HX. The C8500L-8S4X is the successor to the ASR 1001-X. Customers that have the ASR1002-X will need to evaluate what the best migration path will be, the C8500L-8S4X or C8500-12X, depending on how much performance they need. The C8500-20X6C is a new platform for customers that require greater performance and more 100GE ports than are available on the C8500-12X4QC.

Q: What are the different models of the Catalyst 8500 Series Edge Platforms?

A: The Catalyst 8500 Series has four models:

- C8500-20X6C: 20x 1/10GE + 6x 40/100GE
- C8500-12X4QC: 12x 1/10GE + 2x 40GE + 2x 40/100GE (max 240GE total)
- C8500-12X: 12x 1/10GE
- C8500L-8S4X: 8x 1GE + 4x 1/10GE

Q: What are the key differences between the Catalyst 8500 Series and the ASR 1000 Series?

A: Table 1 below describes the key differences between the Catalyst 8500 Series and ASR 1000 Series.

Table 1. Key differences between the Catalyst 8500 Series and ASR 1000 Series

| | C8500-20X6C C8500-12X4QC | C8500-12X | C8500L-8S4X | ASR 1000 Series |
|-------------------------|---------------------------------|---------------------------------|--|---------------------------------|
| Data plane | Cisco QuantumFlow Processor 3.0 | Cisco QuantumFlow Processor 3.0 | x86 SoC architecture with dedicated data plane cores | Cisco QuantumFlow Processor 2.0 |
| Maximum memory | 64 GB | 64 GB | 64 GB | 32 GB |
| Built-in 40/100GE ports | Yes | No | No | No |
| Expansion slots | No | No | No | EPA (ASR 1002-HX) |
| Packet distribution | Load based | Load based | Flow based | Flow based |

Q: What are the key differences between the C8500L-8S4X and other models in the Catalyst 8500 Series?

A: The C8500L-8S4X uses a multicore SoC architecture. Other models in the Catalyst 8500 Series use a dedicated control plane CPU and Cisco QuantumFlow Processor Application-Specific Integrated Circuit (ASIC) for the data plane. The data plane of the C8500L-8S4X uses an advanced flow-based forwarding algorithm to get optimal performance from the forwarding cores. Other Catalyst 8500 Series models use a load-based distribution method, while the C8500L-8S4X model hashes Layer 3 and Layer 4 packet information to assign all the packets from a given flow to a specific data plane core. By assigning all the packets for a given flow to a given core, the system maximizes efficiency in forwarding and evaluating stateful features.

Q: What is the naming convention for the Catalyst 8500 Series Edge Platforms?

A.

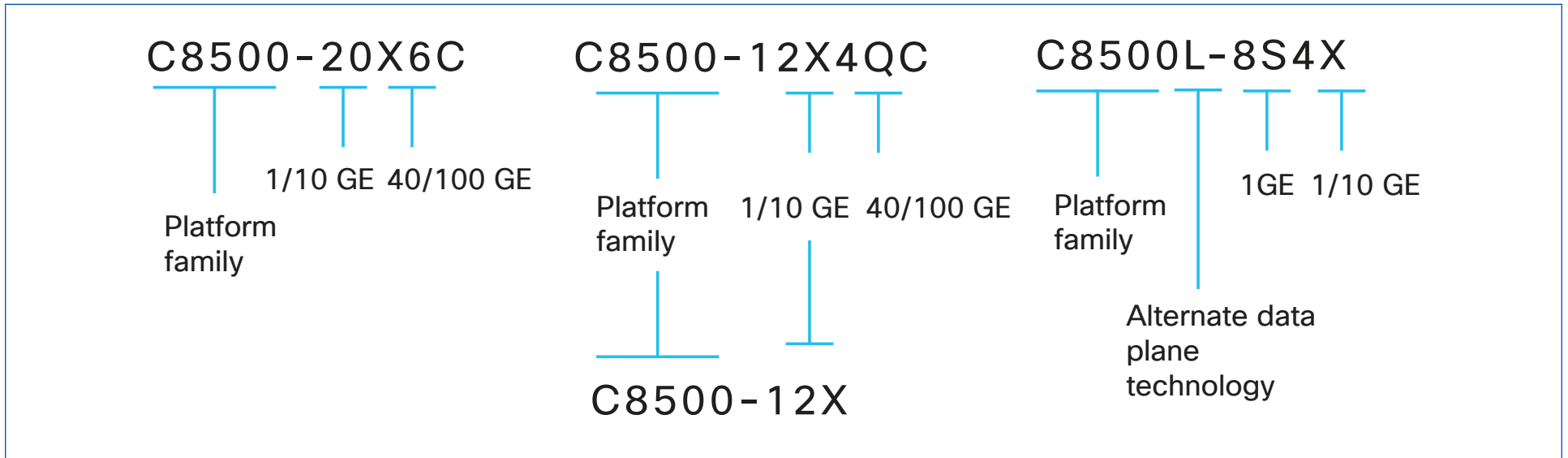


Table 2. Meanings of the Catalyst 8500 Series SKU characters

| SKU character | Significance |
|---------------|--------------|
| S | 1GE port |
| X | 1/10GE port |
| Q | 40GE port |
| C | 100GE port |

Q: What are the available front-panel ports for the Catalyst 8500 Series Edge Platforms?

A: The C8500-20X6C offers 20x 1/10GE SFP+ ports and 6x 40/100 QSFP28 ports. The C8500-12X4QC model has 12x 1/10GE SFP+ ports, 2x 40GE QSFP+ ports, and 2x 40/100GE QSFP28 ports. The C8500-12X model has 12x 1/10GE SFP+ ports. The C8500L-8S4X has 8x 1GE SFP ports and 4x 1/10GE SFP+ ports. Only the C8500-12X4QC platform has configuration options to enable and disable certain ports. On all other Catalyst 8500 Series platforms, all interfaces are enabled and available at all times.

Table 3. Front-panel port configurations

| Platform | 1GE | 1/10GE | 40GE | 40/100GE |
|--------------|-----|--------|------|----------|
| C8500-20X6C | - | 20 | - | 6 |
| C8500-12X4QC | - | 12* | 2 | 2 |
| C8500-12X | - | 12 | - | - |
| C8500L-8S4X | 8 | 4 | - | - |

* 24x 10GE using breakout cables and breakout 3x 40G (in bay2) to 3x 4x 10GE ports plus built-in 12x 10GE ports.

Q: What is the maximum number of ports that can be enabled on the C8500-12X4QC?

A: A maximum of 240GE total can be enabled simultaneously for the C8500-12X4QC. The following table highlights the maximum port configurations.

Table 4. Maximum port configurations for the C8500-12X4QC

| Port type | Configuration |
|------------------|---------------------|
| Max 1GE | 12x 1GE |
| Max 10GE | 12x 10GE* |
| Max 10GE + 40GE | 12x 10GE + 3x 40GE |
| Max 40GE + 10GE | 4x 40GE + 8x 10GE |
| Max 40GE | 3x 40GE** |
| Max 100GE | 2x 100GE*** |
| Max 100GE + 10GE | 1x 100GE + 12x 10GE |

| Port type | Configuration |
|-------------------------|------------------------------|
| Max 100GE + 40GE | 1x 100GE + 3x 40GE |
| Max 100GE + 40GE + 10GE | 1x 100GE + 1x 40GE + 8x 10GE |

*24x 10GE using breakout cables and breakout 3x 40G (in bay 2) to 3x 4x 10GE ports plus built-in 12x 10G ports

**6x 40GE using breakout cable and breakout 1x 100GE (in bay 1) to 3x 40GE + 3x 40GE built-in ports (in bay 2); no other ports are available in bay 0 or bay

***When bay 1 is set up in 100GE mode, no other ports are available in bay 0 or bay 1

Q: How do I change between 10GE, 40GE, and 100GE port configurations on the C8500-12X4QC?

A: Use the following configuration command:

```
Router(config)#hw-module subslot
0/2 mode?

100G configure EPA to 100G mode
10G configure EPA to 10G mode
40G configure EPA to 40G mode
```

Q: How do I see the current port configuration on the C8500-12X4QC?

A: Use the `show interface` and `show ip interface brief` commands to get the interface mode.

Q: What is the default port configuration for the C8500-12X4QC?

A: The default configuration in each port bay of the C8500-12X4QC is:

- Bay 0: 8x 10GE
- Bay 1: 4x 10GE
- Bay 2: 3x 40GE

Ports can be changed according to the maximum port configurations table.

Q: How do I configure the 1/10GE ports in 1GE mode or 10GE mode?

A: The port speed will be determined by the type of transceiver plugged in. A 1GE SFP will enable the port in 1GE mode, and a 10GE SFP+ will enable the port in 10GE mode.

Q: Do the 1/10GE ports support 10/100 Mbps speeds or auto-negotiation with the GLC-TE transceiver?

A: 10/100 Mbps speeds are not supported with the GLC-TE. The C8500L-8S4X platform does not support 10- or 100-Mbps speeds on the front-panel ports. For other Catalyst 8500 Series

platforms, 100-Mbps port speed is supported. The GLC-GE-100FX can be used in the 1/10GE ports.

Q: What is the maximum number of ports that can be enabled on the C8500-20X6C?

A: All twenty 1/10GE SFP+ ports and all six QSFP28 can be enabled at the same time on the C8500-20X6C. Customers will need to decide if they want each of the QSFP28 ports to operate at 100GE or 40GE.

Q: What is the maximum number of ports that can be enabled on the C8500-12X?

A: All twelve 1/10GE SFP+ ports can be enabled on the C8500-12X.

Q: What is the maximum number of ports that can be enabled on the C8500L-8S4X?

A: All eight 1GE SFP and four 1/10GE SFP+ ports can be enabled on the C8500L-8S4X.

Q: What optics are supported on the Catalyst 8500 Series?

A: Review the optics compatibility matrix for complete details on supported optics: <https://tmgmatrix.cisco.com/?si=C8500>.

Q: Does the Catalyst C8500-20X6C support slower Ethernet speeds?

A: The twenty 10/1G interfaces support only 10 Gbps and 1 Gbps speeds. 10 Mbps and 100 Mbps speeds are not supported on any interface. The QSFP28 interfaces support 40 Gbps and 100 Gbps. 25 Gbps is not supported.

Q: Are Ethernet breakout cables supported?

A: The C8500-12X4QC supports four 10GE breakout cables on the QSFP+ interfaces. This allows for up to twenty-four 10GE interfaces on the C8500-12X4QC. The C8500-20X6C platform does not support 4x 10GE breakout cables. No Catalyst 8500 Series platforms support 1GE breakout solutions.

Q: Are all the interfaces non-blocking for forwarding?

A: All interfaces are non-blocking. There is enough bandwidth in the hardware bus between the physical interfaces and the QuantumFlow Processor ASICs to handle all packet forwarding.

Traffic will not encounter bus bottlenecks between the physical interfaces and the QuantumFlow Processor ASICs.

Q: Do specific QuantumFlow Processor ASICs handle incoming traffic from specific interfaces on the C8500-20X6C platform?

A: No. All incoming traffic is distributed across all the forwarding cores/threads on all four of the QuantumFlow Processor ASICs. For traffic leaving the platform, a specific ASIC will handle the queuing and scheduling of the traffic based on its egress interface. The ASIC that processes the forwarding features may or may not match the ASIC that handles the egress queuing and scheduling. This is per design. There is no performance penalty incurred when the forwarding feature ASIC does not match the egress queuing/scheduling ASIC for a given packet.

Q: Can I enable ports 0/2/4 and ports 0/2/8 in 100GE mode on the C8500-12X4QC?

A: No, ports 0/2/4 and 0/2/8 can be enabled only in 40GE mode.

Q: Are Cisco ASR 1000 Series Shared Port Adapter (SPA) Interface Processor cards supported on the Catalyst 8500 Series?

A: No. SPAs are not compatible with the Catalyst 8500 Series Edge Platforms.

Q: Are Cisco ASR 1000 Ethernet Port Adapter (EPA) cards supported on the Catalyst 8500 Series?

A: No. EPA cards are not compatible with the Catalyst 8500 Series Edge Platforms.

Q: Are Network Interface Modules (NIMs) supported on the Catalyst 8500 Series?

A: No. NIMs are not compatible with the Catalyst 8500 Series Edge Platforms.

Q: Do the Catalyst 8500 Series platforms support containers or virtualized applications?

A: Yes, the platforms have cores available for service containers and virtualized services. These services can be defined by the customer. In other words, virtualized applications other than those provided by Cisco can be run on the platform if they are suitable for an x86 environment. Each Catalyst 8500 Series platform offers different core capacity for edge-compute use cases.

Q: What flash storage options are available on the Catalyst 8500 Series?

A: The Catalyst 8500 Series is equipped with a 32-GB embedded USB (eUSB) device for default boot storage. An optional upgrade to a 480-GB SSD is available for the C8500-12X and C8500-12X4QC. The C8500-20X6C has the 480-GB

SSD included by default. The C8500L-8S4X supports a 16-GB (default) and 32-GB eUSB device for default boot storage. The C8500L-8S4X platform supports an optional 2-TB NVMe storage device.

Q: What rack-mounting options are available for the Cisco Catalyst 8500 Series?

A: Available options include 19-inch rack mounting, 23-inch rack mounting, and 4-post rack mounting. The C8500-20X6C has 4-post rack mounting as the recommended method and supports only 19-inch rack mounting.

Q: Where can I find the Mean Time Between Failures (MTBF) information for the Catalyst 8500 Series?

A: MTBF information for the Catalyst 8500 Series Edge Platforms is available in the Catalyst 8500 Series data sheet. MTBF information for the C8500-20X6C is available upon request. (For questions about the C8500-20X6C MTBF, contact the Enterprise Routing program management team.)

Q: Is a console port available on the Catalyst 8500 Series?

A: The Catalyst 8500 Series Edge Platforms include the option of a regular RJ-45 console port as well as a micro-USB console port. Only one of these two ports is active at any time.

Q: Is an RFID tag available on the Catalyst 8500 Series?

A: Yes, an RFID tag is available on the front panel of these platforms (on the left side for C8500 Edge Platforms and on the right side for the C8500L Edge Platform) for externally collecting the inventory (Product ID, Serial Number, Version Identifier, and Unique Device Identifier [PID, SN, VID, and UDI]). These inventories can be used to help prepopulate the devices in the back-end system for zero-touch provisioning. They are also used to collect the inventory offsite.

Q: What information is on the label tray?

A: The label tray contains information regarding the PID, SN, Common Language Equipment Identification (CLEI), Top Assembly Line (TAN), MAC address, and hardware version number.

Q: Is a QR code available?

A: Yes. The QR code is located on the label tray and contains information regarding the PID, SN, CLEI, TAN, MAC address, and hardware version number.

Q: What are the meanings of the status LED colors?

A: The meaning of the status LED colors is as follows:

- No color or off: The port is not enabled by software.
- Amber: The port is enabled by software, but there is a problem with the link.
- Green: The port is enabled by software and the link is valid.

Q: Are the fans Field-Replaceable Units (FRUs)?

A: Yes, the fans are part of a fan tray in the C8500L-8S4X, C8500-12X, and C8500-12X4QC. That fan tray is a field-replaceable part. For the C8500-20X6C, the unit is built to operate on two fans if a third fan fails, and the fans are field replaceable. Power supplies are hot-swappable in all Catalyst 8500 Series platforms.

Q: Will the C8500-20X6C support a future module?

A: No. This is a fixed unit configuration, as are all Catalyst 8500 Series products, and there are no plans to add module support in the future.

Q: What is the air flow in the C8500-20X6C?

A: Front-to-back forced air cooling with three modular 120 mm 48VDC fans.

Q: What are the available options for the C8500-20X6C platform?

A: The available options are the NEBS level 3 air filter, additional power supply, RFID tag, and Cisco DNA subscription license.

Q: Are 23-inch mounting brackets being offered on the C8500-20X6C?

A: No, only 19-inch brackets are included in the accessory kit.

Q: Are the 64-GB DRAM and 480-GB SSD that are factory loaded field upgradable on the C8500-20X6C?

A: No, these are not field-addressable items. Any repairs would require a Return Materials Authorization (RMA).

Power

Q: Are the power supplies in the Catalyst 8500 Series FRUs?

A: Yes, the power supplies for the Catalyst 8500 Series Edge Platforms can be replaced in the field.

Q: Are the power supplies for the Catalyst 8500 Series hot-swappable?

A: Yes. You do not need to power down the chassis to insert or remove a power supply.

The bezel and fan tray can remain in place while a power supply is replaced.

Q: Are there redundant power supplies in the Catalyst 8500 Series?

A: Yes, redundant power supplies are the default.

Q: What power supply options are available for the Catalyst 8500 Series?

A: The C8500-20X6C supports up to four 1100W AC or 950W DC power supplies. The C8500-12X4QC and C8500-12X models support a 750W AC or 950W DC supply. The C8500L-8S4X model supports a 400W power supply in AC, DC, and High-Voltage DC (HVDC) versions.

Q: What is the airflow direction for the power supply?

A: The airflow for the power supply in the Catalyst 8500 Series is front (port side) to back (bezel side).

Q: Does the Catalyst 8500 Series support mixing the AC, DC, and HVDC power supplies in the same chassis?

A: No. All the power supplies need to be the same hardware PID.

Q: How is power usage distributed among the power supplies on the C8500-20X6C?

A: All installed power supplies are used at all times. A minimum of two power supplies is required. If a third or fourth power supply is installed, the load for the system will be evenly distributed among all the installed power supplies. There is no way to configure a given power supply to be in standby mode with no active usage.

Software

Q: What Cisco IOS® Software is available for the Catalyst 8500 Series?

A: The Catalyst 8500 Series Edge Platforms run a Cisco IOS XE Unified image, which supports SD-WAN, SD-Routing, and legacy configuration with a single binary file.

Q: Do the Catalyst 8500 Series models have feature parity with the ASR 1000 Series?

A: The Catalyst 8500 Series Edge Platforms have enterprise feature parity with the ASR 1000 Series.

Q: Do the Catalyst 8500 Series models have broadband feature parity with the ASR 1000 Series?

A: The C8500-12X and C8500-12X4QC have feature parity for broadband features as of IOS XE Release 17.9.3. It is intended that broadband

support for Catalyst 8500 Series platforms will be included only in long-lived releases. The C8500-20X6C gained broadband support with IOS XE Release 17.12.1a. Future long-lived releases will support broadband features. Short-lived releases do not have broadband support. The C8500L-8S4X does not have broadband support at this time.

Q: What software images are available for the Catalyst 8500 Series?

A: The Catalyst 8500 Series Edge Platforms support four types of images:

- Universal
- Universal with no payload encryption
- Universal with no lawful Intercept
- Universal with no payload encryption and no lawful intercept

Images with no payload encryption do not offer any IPsec/MACsec encryption and do not support SD-WAN. Images with no lawful intercept also do not support SD-WAN.

Q: Does the Catalyst 8500 Series support NETCONF and YANG?

A: Yes, the Catalyst 8500 Series Edge Platforms provide support for NETCONF operations and YANG modeling using a combination of industry-wide common models and Cisco specific models.

Q: Is In-Service Software Upgrade (ISSU) supported on the Catalyst 8500 Series?

A: No. ISSU is not supported on the Catalyst 8500 Series Edge Platforms.

Q: What Layer 2 tunneling mechanisms are available on the Catalyst 8500 Series?

A: The Catalyst 8500 Series Edge Platforms support Layer 2 Tunneling Protocol (L2TP) v2 and v3, Ethernet VPN (EVPN), Overlay Transport Virtualization (OTV), and Virtual Private LAN Service (VPLS) as the Layer 2 tunneling mechanisms.

Security

Q: What features from Cisco Trustworthy Solutions are offered on the Catalyst 8500 Series?

A: The security features of Trustworthy Solutions that are offered on the Catalyst 8500 Series include:

- Secure Boot with signed images and hardware anchoring with Secure Unique Device Identifier (SUDI)
- Secure storage
- Run-time defenses
- Authentication and integrity verification

- Recovery mechanisms
- Management plane protections

Q: Does the Catalyst 8500 Series have separate hardware to accelerate VPN operations?

A: The C8500-20X6C, C8500-12X4QC, and C8500-12X models have hardware-accelerated encryption and decryption in the third-generation Cisco QuantumFlow Processor. The C8500L-8S4X model uses Intel QuickAssist Technology (QAT) to provide hardware acceleration for encryption operations.

Q: Is SSL VPN supported on the Catalyst 8500 Series?

A: No, SSL VPN is not supported on the Catalyst 8500 Series Edge Platforms. The alternative would be to use Cisco FlexVPN for remote access.

Q: Is the Cisco Easy VPN client supported on the Catalyst 8500 Series?

A: No, the Easy VPN client is not supported on the Catalyst 8500 Series Edge Platforms. The alternative would be to use FlexVPN for remote access.

Q: What VPN technologies are supported on the Catalyst 8500 Series?

The Catalyst 8500 Series Edge Platforms support the following VPN technologies:

FlexVPN, Dynamic Multipoint VPN (DMVPN), Group Encrypted Transport VPN (GETVPN), and Easy VPN Server.

Q: Is WAN MACsec supported on the Catalyst 8500 Series?

A: Yes, WAN MACsec is supported on all built-in ports of the Catalyst 8500 Series Edge Platforms.

Q: Is there a performance penalty when enabling MACsec?

A: The packets-per-second forwarding rate of the platform is not affected by enabling MACsec on any or all ports on the Catalyst 8500 Series. MACsec does add protocol headers that will affect throughput, but that is inherent to the protocol.

Q: Does enabling IPsec affect platform performance?

A: Enabling IPsec does not affect the forwarding performance of non-encrypted traffic. Traffic that is IPsec encrypted will be affected by the maximum performance of the CPU cores used to encrypt traffic. Discrete CPU cores are used for forwarding and for encryption/decryption actions in the Catalyst 8500 Series platforms. IPsec does add protocol headers that will affect throughput.

Q: Are NSA Suite B and Next-Generation Encryption (NGE) supported on the Catalyst 8500 Series?

A: Yes, Suite B and NGE are supported on the Catalyst 8500 Series Edge Platforms.

Q: Is Encrypted Traffic Analytics (ETA) available on the Catalyst 8500 Series?

A: Yes, the Catalyst 8500 Series Edge Platforms support ETA.

Q: Is the Intrusion Prevention System (IPS) supported on the Catalyst 8500 Series?

A: No, IPS is not supported on the Catalyst 8500 Series Edge Platforms, with the exception of the C8500L-8S4X.

Q: Is content filtering supported on the Catalyst 8500 Series?

A: Yes, content filtering is supported on the Catalyst 8500 Series Edge Platforms using DNS/web layer security.

Q: Does the Catalyst 8500 Series support Cisco Umbrella® Secure Internet Gateway (SIG)?

A: Yes, the Catalyst 8500 Series Edge Platforms support Cisco Umbrella SIG.

Q: Does the Catalyst 8500 Series support third-party SIGs?

A: Yes, the Catalyst 8500 Series Edge Platforms support third-party SIGs.

Q: What other security solutions are offered on the Catalyst 8500 Series?

A: The Catalyst 8500 Series Edge Platforms support:

- IPsec
- MACsec
- Zone-based firewall
- Network Address Translation (NAT)
- Virtual Route Forwarding (VRF)-aware security
- Anomaly detection and machine learning
- Cisco TrustSec®
- Identity-based networking (802.1X)
- Access Control Lists (ACLs)
- Control Plane Protection (CoPP)
- Role-based Command-Line Interface (CLI) access
- Source-based Remotely Triggered Black Hole (RTBH) filtering
- Secure Shell (SSH) v2
- Unicast Reverse Path Forwarding (RPF)

SD-WAN

Q: Do all Catalyst 8500 Series Edge Platforms support Cisco IOS XE SD-WAN?

A: Yes. All C8500 and C8500L models support Cisco IOS XE SD-WAN.

Q: Is there SD-WAN feature parity with the ASR 1000 Series?

A: With the exception of AppNav™, the Catalyst 8500 Series Edge Platforms have SD-WAN feature parity with the ASR 1000 Series.

Q: Is Smart Licensing supported with Cisco IOS XE SD-WAN?

A: Smart Licensing will be the only supported call-home feature on Catalyst 8500 Series Edge Platforms running on Cisco IOS XE or Cisco IOS XE SD-WAN.

Application visibility

Q: How does a lack of visibility into applications impact overall IT operations?

A: Applications and users are more distributed than ever, and the internet has effectively become the new enterprise WAN. As organizations continue to embrace internet, cloud, and SaaS, network and IT teams are challenged to deliver consistent and reliable

connectivity and application performance over networks and services they don't own or directly control.

Network teams often carry the burden of proving the network innocent when something goes wrong. Application issues might manifest as network issues. Finger-pointing and cycles wasted searching for the source issues can lead to prolonged service disruptions that ultimately damage the revenue and reputation of the business.

Q: How does Cisco Catalyst SD-WAN deliver greater application visibility?

A: Catalyst SD-WAN is fully integrated with Cisco ThousandEyes® in a turnkey solution that enables greater visibility for IT operators to drive optimal digital experience across the internet, cloud, and SaaS. With this turnkey solution, you can:

- Gain hop-by-hop visibility into the network underlay, including detailed path and performance metrics.
- Measure and proactively monitor SD-WAN overlay performance and routing policy validation.
- Determine the reachability and performance of Software-as-a-Service (SaaS) and internally owned applications.

- Establish network and application performance baselines across global regions before, during, and after deployment of SD-WAN to mitigate risk and establish and validate Key Performance Indicators (KPIs).

Q: What are the benefits of this expanded visibility?

A: With Catalyst SD-WAN and ThousandEyes, IT managers can rapidly pinpoint the root cause of application and network disruptions, provide actionable insights, and accelerate resolution time.

- Lower the Mean Time To Identify (MTTI) the causes of issues, with fast root-cause isolation and intuitive, easy-to-understand visualization of the entire service delivery chain.
- Eliminate wasteful finger-pointing: Correlate visibility across the application, hop-by-hop network path, underlay and overlay performance, and internet routing to immediately isolate issues to the right problem domain (network or application) and responsible party (internal team or external service).
- Enable effective escalation, with concrete proof to successfully escalate issues to providers and effectively manage Operational-Level Agreements (OLAs) and Service-Level Agreements (SLAs).

Q: What is Cisco ThousandEyes?

A: Cisco ThousandEyes enables enterprises that are increasingly dependent on internet, cloud, and SaaS to see, understand, and improve digital experiences for customers and employees. Its end-to-end visibility from any user to any application, over any network, enables enterprises to quickly pinpoint the source of issues, get to a resolution faster, and measure and manage the performance of what matters.

ThousandEyes collects multilayer telemetry data from vantage points distributed throughout the internet, as well as in enterprise data centers and cloud, branch, and campus environments, providing detailed metrics from between those vantage points and applications and services distributed throughout the globe. The result is real insight into application experience and every underlying dependency, whether network, service, or application related.

For more information, see <https://www.thousandeyes.com>.

Q: How is Catalyst SD-WAN integrated with ThousandEyes?

A: Catalyst SD-WAN is the only SD-WAN solution with turnkey ThousandEyes vantage points. This solution is supported on eligible Catalyst 8500 Series platforms. Existing customers can

expedite ThousandEyes agent deployment with Catalyst SD-WAN Manager integration and enable faster time to value for their IT operators.

Q: What are the minimum requirements for ThousandEyes?

ThousandEyes is natively integrated with eligible Catalyst 8500 Series Edge Platforms with a minimum of 8-GB DRAM and 8-GB bootflash/storage. Additional memory and storage will be necessary for concurrently running a ThousandEyes agent with containerized SD-WAN security services.

Q: How is ThousandEyes ordered?

Customers can leverage existing ThousandEyes subscriptions with eligible Catalyst 8500 Series Edge Platforms.

- Existing ThousandEyes customers can use their available ThousandEyes license and units toward new tests.
- New ThousandEyes customers will need to purchase a ThousandEyes license to activate the ThousandEyes agent.

Licensing

Q: What is the software packaging and traditional licensing model for the Catalyst 8500 Series?

A: The Catalyst 8500 Series Edge Platforms include the following Cisco DNA license packaging:

- Cisco DNA Advantage with Network Advantage
- Cisco DNA Premier with Network Advantage (not included on the C8500-20X6C)

Q: What is included as part of Cisco DNA Advantage versus Cisco DNA Premier?

A: To learn about the features of each package, refer to the Cisco DNA Software for SD-WAN and Routing at: https://www.cisco.com/c/m/en_us/products/software/sd-wan-routing-matrix.html?oid=otren019258.

Q: Are Cisco ASR 1000 Series perpetual licenses compatible with the Catalyst 8500 Series?

A: No, the Catalyst 8500 Series Edge Platforms are Cisco DNA subscription-only platforms. A perpetual network stack for Routing is included with all Cisco DNA subscriptions.

Q: What are the applicable subscription tiers for the Catalyst 8500 Series?

A: Refer to the Catalyst 8500 Series Edge Platforms ordering guide.

Q: What is an HSEC license?

A: An HSEC license is an export-controlled license for strong levels of encryption. HSEC is always included as part of the Catalyst 8500 Series Edge Platforms.

Q: Does the Catalyst 8500 Series support Smart Licensing?

A: Yes, Smart Licensing is the only mode of licensing on the Catalyst 8500 Series Edge Platforms. Visit https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/smart-licensing/qsg/b_Smart_Licensing_QuickStart/b_Smart_Licensing_QuickStart_chapter_00.html.

For a more detailed overview of Cisco Smart Licensing, go to [cisco.com/go/licensingguide](https://www.cisco.com/go/licensingguide).

Q: Are throughput performance and boost licenses available with the Catalyst 8500 Series?

A: No, throughput performance is based on Cisco DNA subscription tiers.

Q: Are there port licenses for the Catalyst 8500 Series?

A: No, all ports are available without port licenses in the platform.

Q: Is Cisco ONE® licensing available for the Catalyst 8500 Series?

A: No.

Q: What are the Cisco DNA categories supported on the C8500-20X6C?

A: Cisco DNA Advantage is the only supported version. There are no plans to add Essentials or Premier.

Q: What Cisco DNA licenses are available on the C8500-20X6C?

A: Two Cisco DNA Advantage licenses are offered, and a Cisco DNA license is required when purchasing the hardware platform. Options are as follows based on two bandwidth tiers:

For SD-WAN, the bandwidth tier is metered by WAN traffic (encrypted or not). For Routing, the bandwidth tier is metered by IPsec. For example:

- **Tier 5 (WAN traffic):** IPsec throughput is Unthrottled/Unenforced 50 Gbps full duplex, 100 Gbps aggregate.
- **Tier 4 (WAN traffic):** IPsec throughput is Throttled 25 Gbps full duplex, 50 Gbps aggregate.

Q: Is the Network Stack (NS) for Tier 4 and Tier 5 in Autonomous mode still perpetual after the license term ends?

A: Yes.

Q: Is Cisco Express Forwarding throttled?

A: No. Licenses do not impact the performance of non-IPsec traffic.

Application hosting

Q: How many CPU cores are available for Cisco IOx application hosting?

A: One CPU core is available for Cisco IOx application hosting on the C8500-12X4QC, C8500-12X, and C8500-20X6C. Up to four cores may be made available for Cisco IOx application hosting on the C8500L-8S4X platform, depending on how the platform is configured.

Q: Can applications be hosted on the bootflash?

A: Yes, but we recommend using an SSD or M.2 storage for Cisco IOx application hosting for best results.

Q: Is Docker supported on the Catalyst 8500 Series Edge Platforms?

A: No. Docker is not supported.



Q: Do the Catalyst 8500 Series Edge Platforms support Python programmability?

A: Yes, the Catalyst 8500 Series supports Python programmability.

It has multiple use cases, such as:

Python programmability allows users to control devices running Cisco IOS XE by running Python code that makes use of APIs.

- Interactive Python prompts
- Cisco IOS Embedded Event Manager
- Running Python scripts
- Zero-touch provisioning