



Trust Anchor Technologies

Image Signing & Secure Boot Implementation Report

Cisco® Trust Anchor Technologies provide the foundation for Cisco Trustworthy Systems. Image Signing and Secure Boot help ensure that the code running on Cisco hardware platforms is authentic and unmodified.

- **Image Signing:** Cryptographically signed images help ensure that the firmware, BIOSes, and other software are authentic and unmodified. These signatures provide a critical check so that only authentic, unmodified software can be executed. As the system boots, this signature is checked by an anchor of trust, ensuring the integrity of the system's software.
- **Secure Boot and Hardware Trust Anchors:** Secure Boot takes Image Signing to the next level by providing increased assurance about the integrity of the hardware and software that are performing image checks and other critical system functions. It does this through a combination of immutable hardware-based anchors of trust and it assures that a system's foundational state and software that is to be loaded is unable to be modified (regardless of a user's privilege level).

Image signing effectively mitigates persistent attacks. Secure boot makes that protection even more robust. A device with these characteristics offers a network administrator the ability to prevent man-in-the-middle replacements of software and firmware and provide layered protections against persistence of illicitly modified firmware.

The tables below indicate which Cisco products currently support signed images and Secure Boot.

Table 1. Enterprise Router Signed Image Support

Product Family	Image Signing Supported	Secure Boot of Image Signing Supported
ISR-1900, 2900, & 3900 series	Yes	No
ISR 59xx	Yes	No
ISR-800 series	Yes for Select Models	Yes for C841M-4X/K9, C841M-8X/K9, C881-ECO5-K9, C881-K9, C886VA-K9, C886VAJ-K9, C887VA-K9, C887VAM-K9, C888-K9, C891-24X/K9, C891F-K9, C891FJ-K9, C891FW-A-K9, C891FW-E-K9, C897VAB-K9
ISR-4000 series	Yes	Yes
ASR-1001-X ASR-1002-X	Yes	Yes
Cisco CSR 1000V Series	Yes	No
WAAS	Yes	No

Table 2. Enterprise Switching Signed Image Support

Product Family	Image Signing Supported	Secure Boot of Image Signing Supported
Cat 2960X, Cat 2960XR, Cat C3560e-*, Cat C3750e-* (E releases only)	Yes for select models/SW listed here	Yes for select models
Cat 3850 & 3650	Yes	Yes for select models
Cat 4K Sup 7	Yes	No
Cat 4K Sup 8E	Yes	No
Cat 6K Sup 720	Yes	No
Cat 6K Sup 2T	Yes	No
Cat 6800	Yes	Yes for select models

Table 3. IoT Signed Image Support

Product Family	Image Signing Supported	Secure Boot of Image Signing Supported
CGR1240	Yes	Yes
CGR1120	Yes	Yes
IR809G	Yes	Yes
IRS829GW	Yes	Yes

Table 4. Data Center Nexus Signed Image Support

Product Family	Image Signing Supported	Secure Boot of Image Signing Supported
NX 7K	Yes	No
N3K	Yes	Yes for select models
NX 9k	Yes	Yes
Cisco Nexus 1000V Switch for Red Hat	Yes	No
Cisco Nexus Data Broker Software Application	Yes	No

Table 5. Data Center UCS Signed Image Support

Product Family	Image Signing Supported	Secure Boot of Image Signing Supported
UCS Install	Yes	No
UCS E-series Double wide server	Yes	No

Table 6. Service Provider Router Signed Image Support

Product Family	Image Signing Supported	Secure Boot of Image Signing Supported
ASR-9000	Yes	Yes for select models
NCS 4k and 6K	Yes	Yes
CRS-1	Yes	No
ASR-900 & ASR-920	Yes	Yes for select models
ONS- 15454	Yes	Yes for select models

Table 7. Security Signed Image Support

Product Family	Image Signing Supported	Secure Boot of Image Signing Supported
ASA5506-X	Yes	Yes
ASA5508-X	Yes	Yes
ASA5516	Yes	Yes
Cisco Adaptive Security Virtual Appliance	Yes	No
Cisco Firepower 9300 Security Appliance	Yes	No
FX-OS image for Firepower	Yes	No
AnyConnect	Yes	No
ISE	Yes	No

Table 8. Phones Signed Image Support

Product Family	Image Signing Supported	Secure Boot of Image Signing Supported
6901/6911/6921/6941/6961/6945 Phones	Yes	No
7811/7821/7841/7861 Phones	Yes	No
8941/8945 Phones	Yes	No
8831 Phone	Yes	No
8961/9951/9971 Phones	Yes	Yes
8811/8841/8851/8851NR/8861 Phones	Yes	Yes
8845/8865	Yes	Yes

Table 9. Collaboration Signed Image Support

Product Family	Image Signing Supported	Secure Boot of Image Signing Supported
Cisco TelePresence Server version 4.1 on 8710 and 7010 platforms	Yes	No
Cisco TelePresence Server version 4.1 on Media 310 and 320 platforms	Yes	No
Cisco TelePresence System Software for CTS500-37, CTS1000, CTS1100, CTS1300-65, CTS3000, CTS3010, CTS3200 and CTS3210	Yes	No
Cisco TelePresence System Software for the IX5000 and IX5200	Yes	No
Cisco TelePresence Video Communication Server and Expressway series	Yes	No
Cisco TelePresence Management Suite 14.6.2	Yes	No
Cisco Desktop Collaboration Experience	Yes	No
Unity Connection 9.1	Yes	No
Voice Gateway	Yes	No
CUCM Versions: 8.5+	Yes	No
Cisco Jabber for Mac and Windows	Yes	No

Table 10. Cloud Signed Image Support

Product Family	Image Signing Supported	Secure Boot of Image Signing Supported
ACI	Yes	No
Intercloud Fabric Software.	Yes	No
Cisco Intelligent Automation for Cloud	Yes	No
Cloud VPN Orchestration Platform	Yes	No

Table 11. Management Signed Image Support

Product Family	Image Signing Supported	Secure Boot of Image Signing Supported
Cisco Prime	Yes	No
Prime License Manager	Yes	No
Quantum Policy Suite	Yes	No
Cisco Security Manager	Yes	No
FX-OS image for Firepower	Yes	No

Table 12. Applications Signed Image Support

Product Family	Image Signing Supported	Secure Boot of Image Signing Supported
Cisco Emergency Responder 10.5(1)	Yes	No
Stadium Vision Director	Yes	No
Energy Management Controller	Yes	No
Workforce Management	Yes	No
Cisco Digital Content Manager	Yes	No
Broadband Access Center for Telco Wireless	Yes	No

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Read more about Security and Trust at <https://trust.cisco.com>.

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