



Cisco Identity Services Engine Network Component Compatibility, Release 2.0

Revised: May 15, 2020

This document describes Cisco Identity Services Engine (ISE) validated compatibility with switches, wireless LAN controllers, and other policy enforcement devices as well as operating systems with which Cisco ISE interoperates.

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Validated Network Access Devices

Cisco ISE supports interoperability with any Cisco or non-Cisco RADIUS client network access device (NAD) that implements common RADIUS behavior (similar to Cisco IOS 12.x) for standards-based authentication. For a list of supported authentication methods, see the “Manage Authentication Policies” chapter of the [Cisco Identity Services Engine Admin Guide, Release 2.0](#).

RADIUS

Cisco ISE interoperates fully with third-party RADIUS devices that adhere to the standard protocols. Support for RADIUS functions depends on the device-specific implementation.

RFC Standards

Cisco ISE conforms to the following RFCs:

- *RFC 2138—Remote Authentication Dial In User Service (RADIUS)*
- *RFC 2139—RADIUS Accounting*
- *RFC 2865—Remote Authentication Dial In User Service (RADIUS)*
- *RFC 2866—RADIUS Accounting*
- *RFC 2867—RADIUS Accounting Modifications for Tunnel Protocol Support*
- *RFC 5176—Dynamic Authorization Extensions to Remote Authentication Dial In User Service (RADIUS)*

**Note**

Certain advanced use cases, such as those that involve posture assessment, profiling, and web authentication, are not consistently available with non-Cisco devices or may provide limited functionality. We recommend that you validate all network devices and their software for hardware capabilities or bugs in a particular software release.

For information on enabling specific functions of Cisco ISE on network switches, see the “Switch and Wireless LAN Controller Configuration Required to Support Cisco ISE Functions” chapter in [Cisco Identity Services Engine Admin Guide, Release 2.0](#).

For information about third-party NAD profiles, see the [ISE Community Resources](#).

**Note**

Some switch models and IOS versions may have reached the end-of-life date and interoperability may not be supported by Cisco TAC.

**Caution**

To support the Cisco ISE profiling service, use the latest version of NetFlow, which has additional functionality that is needed to operate the profiler. If you use NetFlow version 5, then you can use version 5 only on the primary NAD at the access layer, as it will not work anywhere else.

For Wireless LAN Controllers, note the following:

- MAB supports MAC filtering with RADIUS lookup.

- Support for session ID and COA with MAC filtering provides MAB-like functionality.
- DNS based ACL feature will be supported in WLC 8.0. Not all Access Points support DNS based ACL. Refer to Cisco Access Points Release Notes for more details.

Table 1 lists the support for the devices as follows:

- **✓** — Fully supported
- **X** — Not supported
- **!** — Limited support, some functionalities are not supported

The following are the functionalities supported by each feature:

| Feature | Functionality |
|-----------------------|---|
| AAA | 802.1X, MAB, VLAN Assignment, dACL |
| Profiling | RADIUS CoA and Profiling Probes |
| BYOD | RADIUS CoA, URL Redirection + SessionID |
| Guest | RADIUS CoA, URL Redirection + SessionID, Local Web Auth |
| Guest Originating URL | RADIUS CoA, URL Redirection + SessionID, Local Web Auth |
| Posture | RADIUS CoA, URL Redirection + SessionID |
| MDM | RADIUS CoA, URL Redirection + SessionID |
| TrustSec | SGT Classification |

Table 1 Validated Network Access Devices

| Device | Recommended OS ¹ | AAA | Profiling | BYOD | Guest | Guest Originating URL | Posture | MDM | TrustSec ² |
|--|-----------------------------|-----|-----------|------|-------|-----------------------------|---------|-----|-----------------------|
| | Minimum OS ³ | | | | | | | | |
| Cisco Access Switches | | | | | | | | | |
| IE2000 | IOS 15.2(2) E3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | X |
| IE3000 | IOS 15.0(2) EB | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | X |
| CGS 2520 | IOS 15.2(3)E3 | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ |
| | IOS 15.0(2)EK1 | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ |
| Catalyst 2960 LAN Base | IOS 12.2.55-SE10 | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | X |
| | IOS v12.2(55)SE5 | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | X |
| Catalyst 2960-C | IOS 15.2(2)E3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Catalyst 3560-C | IOS 12.2(55) EX3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Catalyst 2960-Plus | IOS 15.2(2)E3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Catalyst 2960-SF | IOS 15.0(2)SE7 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | X |
| Catalyst 2960-S | IOS 15.0.2-SE10a | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | X |
| | IOS v12.2.(55)SE5 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | X |
| Catalyst 2960–XR | IOS 15.2(2)E3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Catalyst 2960–X | IOS 15.0.2A-EX5 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | X |
| Catalyst 2960-CX | IOS 15.2(3)E1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Catalyst 3560-CX | IOS 15.2(3)E | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Catalyst 3560G | IOS 12.2.(55)SE10 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Catalyst 3750G | IOS 12.2(55)SE5 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Catalyst 3560V2 | IOS 12.2.(55)SE10 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Catalyst 3750V2 | IOS 12.2.(55)SE5 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Catalyst 3560-E | IOS 12.2.(55)SE10 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Catalyst 3750-E | IOS v12.2(55)SE5 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Catalyst 3560-X | IOS 15.2(2)E3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Catalyst 3750-X | IOS 12.2.(55)SE5 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Catalyst 3850 | IOS XE 16.3.3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Catalyst 3650 | IOS XE 3.6.3 | | | | | | | | |
| | IOS XE 3.3.5.SE | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Catalyst 4500-X | IOS XE 3.6.3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | IOS XE 3.4.4 SG | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ |
| Catalyst 4500 Supervisor 7-E, 7L-E | IOS XE 3.6.3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | IOS XE 3.4.4 SG | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ |

Table 1 Validated Network Access Devices (continued)

| Device | Recommended OS ¹ | AAA | Profiling | BYOD | Guest | Guest Originating URL | Posture | MDM | TrustSec ² |
|---|-----------------------------|-----|-----------|------|-------|-----------------------------|---------|-----|-----------------------|
| | Minimum OS ³ | | | | | | | | |
| Catalyst 4500 Supervisor 6-E, 6L-E | IOS 15.2(2)E3 | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ |
| | IOS 15.2(2)E | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ |
| Catalyst 4500 Supervisor 8-E | IOS XE 3.6.3 | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ |
| | IOS XE 3.3.2 XO | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ |
| Catalyst 6500-E (Supervisor 32) | IOS 12.2.33-SJX9 | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ |
| | IOS v12.2(33)SXI6 | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ |
| Catalyst 6500-E (Supervisor 720) | IOS 15.1(2)SY5 | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ |
| | IOS v12.2(33)SXI6 | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ |
| Catalyst 6500-E (VS-S2T-10G) | IOS 15.1(2)SY5 | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ |
| | IOS 15.0(1)SY1 | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ |
| Catalyst 6807-XL Catalyst 6880-X (VS-S2T-10G) | IOS 15.1(2)SY5 | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ |
| | IOS 15.0(1)SY1 | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ |
| Catalyst 6848ia | IOS 15.1(2)SY5 | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ |
| | IOS 15.1(2) SY+ | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ |
| Catalyst 9300 ⁴ | IOS 16.6.2 ES | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | IOS 16.6.2 ES | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Catalyst 9400 ⁴ | IOS 16.6.2 ES | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | IOS 16.6.2 ES | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Catalyst 9500 ⁴ | IOS 16.6.2 ES | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | IOS 16.6.2 ES | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Meraki MS Platforms | Latest Version | ✓ | ✓ | ✓ | ! | X | X | X | X |
| | Latest Version | ✓ | ✓ | X | ! | X | X | X | X |

Third Party Access Switches

| | | | | | | | | | |
|------------------|----------|---|---|---|---|---|---|---|---|
| Avaya ERS 2526T | 4.4 | ✓ | ! | X | X | X | X | X | X |
| | 4.4 | ✓ | ! | X | X | X | X | X | X |
| Brocade ICX 6610 | 8.0.20 | ✓ | ✓ | X | X | X | X | X | X |
| | 8.0.20 | ✓ | ✓ | X | X | X | X | X | X |
| HP H3C | 5.20.99 | ✓ | ! | X | X | X | X | X | X |
| HP ProCurve | 5.20.99 | ✓ | ! | X | X | X | X | X | X |
| Juniper EX3200 | 12.3R6.6 | ✓ | ! | X | X | X | X | X | X |
| | 12.3R6.6 | ✓ | ! | X | X | X | X | X | X |

Cisco Wireless LAN Controllers⁵

Table 1 Validated Network Access Devices (continued)

| Device | Recommended OS ¹ | AAA | Profiling | BYOD | Guest | Guest Originating URL | Posture | MDM | TrustSec ² |
|--|-----------------------------|-----|-----------|------|-------|-----------------------------|---------|-----|-----------------------|
| | Minimum OS ³ | | | | | | | | |
| WLC 2100 | AirOS 7.0.116.0 | ! | ✓ | X | ! | X | X | X | X |
| | AirOS 7.0.116.0 | ! | ✓ | X | ! | X | X | X | X |
| WLC 4400 | AirOS 7.0.116.0 | ! | ✓ | X | ! | X | X | X | X |
| | AirOS 7.0.116.0 | ! | ✓ | X | ! | X | X | X | X |
| WLC 2500 | AirOS 8.0.121.0 | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ |
| | AirOS 7.2.103.0 | ! | ✓ | ✓ | ✓ | X | ✓ | ✓ | X |
| WLC 5508 | AirOS 8.0.121.0 | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ |
| | AirOS 7.0.116.0 | ! | ✓ | X | ! | X | X | X | ✓ |
| WLC 5520 | AirOS 8.1.122.0 | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ |
| | AirOS 8.1.122.0 | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ |
| WLC 7500 | AirOS 8.0.121.0 | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | X |
| | AirOS 7.2.103.0 | ! | ✓ | X | X | X | X | X | X |
| WLC 8510 | AirOS 8.0.120.0 | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | X |
| | AirOS 7.4.121.0 | ✓ | ✓ | X | X | X | X | ✓ | X |
| WLC 8540 | AirOS 8.1.122.0 | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | X |
| | AirOS 8.1.122.0 | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | X |
| vWLC | AirOS 8.0.120.0 | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | X |
| | AirOS 7.4.121.0 | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | X |
| WiSM1 6500 | AirOS 7.0.116.0 | ! | ✓ | X | ! | X | X | X | X |
| | AirOS 7.0.116.0 | ! | ✓ | X | ! | X | X | X | X |
| WiSM2 6500 | AirOS 8.0.120.0 | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ |
| | AirOS 7.2.103.0 | ! | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ |
| WLC 5760 | IOS XE 3.6.3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | IOS XE 3.3 | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ |
| WLC for ISR (ISR2 ISM, SRE700, and SRE900) | AirOS 7.0.116.0 | ! | ✓ | X | ! | X | X | X | X |
| | AirOS 7.0.116.0 | ! | ✓ | X | ! | X | X | X | X |
| Meraki MR Platforms | Public Beta | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | X |
| | General Availability | ✓ | ! | X | ! | X | X | X | X |
| Third Party Wireless LAN Controllers | | | | | | | | | |
| Aruba 3200XM Aruba 650 | 6.4 | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | X |
| | 6.4 | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | X |

Table 1 Validated Network Access Devices (continued)

| Device | Recommended OS ¹ | AAA | Profiling | BYOD | Guest | Guest Originating URL | Posture | MDM | TrustSec ² |
|---|-----------------------------|-----|-----------|------|-------|-----------------------|---------|-----|-----------------------|
| | Minimum OS ³ | | | | | | | | |
| Motorola RFS 4000 | 5.5 | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | X |
| | 5.5 | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | X |
| HP 830 | 35073P5 | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | X |
| | 35073P5 | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | X |
| Ruckus ZD1200 | 9.9.0.0 | ✓ | ✓ | X | X | X | X | X | X |
| | 9.9.0.0 | ✓ | ✓ | X | X | X | X | X | X |
| Cisco Routers | | | | | | | | | |
| ISR 88x, 89x Series | IOS 15.3.2T(ED) | ✓ | ! | X | ! | X | X | X | ✓ |
| | IOS 15.2(2)T | ! | ! | X | ! | X | X | X | ✓ |
| ISR 19x, 29x, 39x Series | IOS 15.3.2T(ED) | ✓ | ! | X | ! | X | X | X | ✓ |
| | IOS 15.2(2)T | ✓ | ! | X | ! | X | X | X | ✓ |
| SGR 2010 | IOS 15.3.2T(ED) | ✓ | ! | X | ! | X | X | X | ✓ |
| | IOS 15.3.2T(ED) | ✓ | ! | X | ! | X | X | X | ✓ |
| 4451-X SM-X L2/L3 Ethermodule | IOS XE 3.11 | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ |
| | IOS XE 3.11 | ✓ | ✓ | ✓ | ✓ | X | ✓ | ✓ | ✓ |
| Cisco Remote Access | | | | | | | | | |
| ASA 5500, ASA 5500-X (Remote Access Only) | ASA 9.2.1 | NA | NA | ✓ | NA | X | ✓ | X | ✓ |
| | ASA 9.1.5 | NA | NA | X | NA | X | X | X | X |
| Meraki MX Platforms | Latest Version | ✓ | ! | X | ! | X | X | X | X |
| | Latest Version | ✓ | ! | X | ! | X | X | X | X |

1. Recommended OS is the version tested for compatibility and stability.
2. For a complete list of Cisco TrustSec feature support, see http://www.cisco.com/en/US/solutions/collateral/ns170/ns896/ns1051/product_bulletin_c25-712066.html.
3. Minimum OS is the version in which the features got introduced.
4. Catalyst 9000 Series Switches are validated with Cisco ISE, Release 2.0.1 Patch 4.
5. Cisco Wireless LAN Controllers (WLCs) and Wireless Service Modules (WiSMs) do not support downloadable ACLs (dACLs), but support named ACLs. Autonomous AP deployments do not support endpoint posturing. Profiling services are supported for 802.1X-authenticated WLANs starting from WLC release 7.0.116.0 and for MAB-authenticated WLANs starting from WLC 7.2.110.0. FlexConnect, previously known as Hybrid Remote Edge Access Point (HREAP) mode, is supported with central authentication configuration deployment starting from WLC 7.2.110.0. For additional details regarding FlexConnect support, refer to the release notes for the applicable wireless controller platform.

AAA Attributes for RADIUS Proxy Service

For RADIUS proxy service, the following authentication, authorization, and accounting (AAA) attributes must be included in the RADIUS communication:

- Calling-Station-ID (IP or MAC_ADDRESS)

- RADIUS::NAS_IP_Address
- RADIUS::NAS_Identifier

AAA Attributes for Third-Party VPN Concentrators

For VPN concentrators to integrate with Cisco ISE, the following authentication, authorization, and accounting (AAA) attributes should be included in the RADIUS communication:

- Calling-Station-ID (tracks individual client by MAC or IP address)
- User-Name (tracks remote client by login name)
- NAS-Port-Type (helps to determine connection type as VPN)
- RADIUS Accounting Start (triggers official start of session)
- RADIUS Accounting Stop (triggers official end of session and releases ISE license)
- RADIUS Accounting Interim Update on IP address change (for example, SSL VPN connection transitions from Web-based to a full-tunnel client)



Note

For VPN devices, the RADIUS Accounting messages must have the Framed-IP-Address attribute set to the client's VPN-assigned IP address to track the endpoint while on a trusted network.

Validated External Identity Sources

Refer to [Cisco Identity Services Engine Administrator Guide, Release 2.0](#) for more information.

Table 2 Validated External Identity Sources

| External Identity Source | OS/Version |
|---|--------------------|
| Active Directory^{1,2,3} | |
| Microsoft Windows Active Directory 2003 | — |
| Microsoft Windows Active Directory 2003 R2 | — |
| Microsoft Windows Active Directory 2008 | — |
| Microsoft Windows Active Directory 2008 R2 | — |
| Microsoft Windows Active Directory 2012 | — |
| Microsoft Windows Active Directory 2012 R2 ⁴ | — |
| LDAP Servers | |
| SunONE LDAP Directory Server | Version 5.2 |
| OpenLDAP Directory Server | Version 2.4.23 |
| Token Servers | |
| RSA ACE/Server | 6.x series |
| RSA Authentication Manager | 7.x and 8.x series |
| Any RADIUS RFC 2865-compliant token server | — |
| Security Assertion Markup Language (SAML) Single Sign-On (SSO) | |

Table 2 **Validated External Identity Sources (continued)**

| External Identity Source | OS/Version |
|----------------------------------|--------------------|
| Oracle Access Manager (OAM) | Version 11.1.2.2.0 |
| Oracle Identity Federation (OIF) | Version 11.1.1.2.0 |

1. Cisco ISE OCSP functionality is available only on Microsoft Windows Active Directory 2008, 2008 R2, 2012, and 2012 R2.
2. Cisco ISE SCEP functionality is available only on Microsoft Windows Active Directory 2008 R2, 2012, and 2012 R2.
3. Microsoft Windows Active Directory version 2000 or its functional level are not supported by Cisco ISE.
4. Cisco ISE supports all the legacy features in Microsoft Windows Active Directory 2012 R2; however, the new features in 2012 R2, such as Protective User Groups, are not supported.

Supported Browsers for the Admin Portal

- Mozilla Firefox 69 and earlier versions
- Mozilla Firefox ESR 60.9 and earlier versions
- Google Chrome 77 and earlier versions
- Microsoft Internet Explorer 10.x and 11.x

If you are using Internet Explorer 10.x, enable TLS 1.1 and TLS 1.2, and disable SSL 3.0 and TLS 1.0 (Internet Options > Advanced).

Adobe Flash Player 11.1.0.0 or above must be installed on the system running your client browser.

The minimum required screen resolution to view the Cisco ISE Admin portal and for a better user experience is 1280 x 800 pixels.

Validated Virtual Environments

Cisco ISE supports the following virtual environment platforms:

- VMware ESXi 5.x, 6.x
- KVM on RHEL 7.0

Validated Cisco Mobility Services Engine Release

Cisco ISE, Release 2.0 integrates with Cisco Mobility Services Engine (MSE), Release 8.0 to provide Location Service (also known as Context Aware Service). This service allows you to track the location of wireless devices.

For information on how to integrate Cisco ISE with Cisco MSE, refer to:

- [Location based authorization with Mobility Services Engine \(MSE\) and Identity Services Engine \(ISE\) ISE 2.0](#)
- [Cisco Identity Services Engine Administrator Guide, Release 2.0](#)

Validated Cisco Prime Infrastructure Release

Cisco Prime Infrastructure, Release 3.1 integrates with Cisco ISE, Release 2.0 to leverage the monitoring and reporting capabilities of Cisco ISE.

Validated Client Machine and Personal Device Operating Systems, Supplicants, and Agents

[Client Machine Operating Systems and Agent Support in Cisco ISE, page 10](#) lists the supported client machine operating systems, browsers, and agent versions supporting each client machine type. For all devices, you must also have cookies enabled in the web browser.

All standard 802.1X supplicants can be used with Cisco ISE, Release 2.0 standard and advanced features as long as they support the standard authentication protocols supported by Cisco ISE. (For information on allowed authentication protocols, see the “Manage Authentication Policies” chapter of the [Cisco Identity Services Engine Administrator Guide, Release 2.0](#)). For the VLAN change authorization feature to work in a wireless deployment, the supplicant must support IP address refresh on VLAN change.

**Note**

The new features introduced in Cisco ISE, Release 1.4, such as the Service Check (MAC OS X), File Check (MAC OS X), Application Check (MAC OS X), and Patch Management Check (MAC OS X and Windows), are available only with AnyConnect 4.1.00028 or later. Refer to the [Cisco Identity Services Engine Administrator Guide, Release 2.0](#) for more information.

Cisco NAC Agent Interoperability Between Cisco NAC Appliance and Cisco ISE

The Cisco NAC Agent versions 4.9.5.3 and later can be used on both Cisco NAC Appliance Releases 4.9(3), 4.9(4), 4.9(5) and Cisco ISE Releases 1.1.3-patch 11, 1.1.4-patch 11, 1.2, 1.3, 1.4, 2.0. This is the recommended model of deploying the NAC agent in an environment where users will be roaming between ISE and NAC deployments.

Client Machine Operating Systems and Agent Support in Cisco ISE

- [Google Android](#)
- [Apple iOS](#)
- [Apple Mac OS X](#)
- [Microsoft Windows](#)
- [Others](#)

Table 3 **Google Android ¹**

| Client Machine Operating System | Web Browser | Supplicants (802.1X) |
|--|---|---------------------------------|
| Google Android 8.x | <ul style="list-style-type: none"> • Native browser • Mozilla Firefox | Google Android Supplicant 8.x |
| Google Android 7.x ² | <ul style="list-style-type: none"> • Native browser • Mozilla Firefox | Google Android Supplicant 7.x |
| Google Android 6.x | <ul style="list-style-type: none"> • Native browser • Mozilla Firefox | Google Android Supplicant 6.x |
| Google Android 5.x | <ul style="list-style-type: none"> • Native browser • Mozilla Firefox | Google Android Supplicant 5.x |
| Google Android 4.4.x | <ul style="list-style-type: none"> • Native browser • Mozilla Firefox | Google Android Supplicant 4.4.x |
| Google Android 4.2.x | <ul style="list-style-type: none"> • Native browser • Mozilla Firefox | Google Android Supplicant 4.2.x |
| Google Android 4.1.2 | <ul style="list-style-type: none"> • Native browser • Mozilla Firefox | Google Android Supplicant 4.1.2 |
| Google Android 4.0.4 | <ul style="list-style-type: none"> • Native browser • Mozilla Firefox | Google Android Supplicant 4.0.4 |
| Google Android 4.0.3 | <ul style="list-style-type: none"> • Native browser • Mozilla Firefox | Google Android Supplicant 4.0.3 |
| Google Android 4.0 | <ul style="list-style-type: none"> • Native browser | Google Android Supplicant 4.0 |
| Google Android 3.2.1 | <ul style="list-style-type: none"> • Native browser • Mozilla Firefox | Google Android Supplicant 3.2.1 |
| Google Android 3.2 | <ul style="list-style-type: none"> • Native browser | Google Android Supplicant 3.2 |
| Google Android 2.3.6 | <ul style="list-style-type: none"> • Native browser • Mozilla Firefox | Google Android Supplicant 2.3.6 |
| Google Android 2.3.3 | <ul style="list-style-type: none"> • Native browser • Mozilla Firefox | Google Android Supplicant 2.3.3 |
| Google Android 2.2.1 | <ul style="list-style-type: none"> • Native browser | Google Android Supplicant 2.2.1 |
| Google Android 2.2 | <ul style="list-style-type: none"> • Native browser • Mozilla Firefox | Google Android Supplicant 2.2 |

1. Because of the open access-nature of Android implementation on available devices, Cisco ISE may not support certain Android OS version and device combinations.

2. Tested with Cisco ISE, Release 2.0 patch 3 and Release 2.0.1 patch 1.

Table 4 **Apple iOS ¹**

| Client Machine Operating System | Web Browser | Supplicants (802.1X) |
|---------------------------------|-------------|----------------------------|
| Apple iOS 12.x | • Safari | Apple iOS Supplicant 12.x |
| Apple iOS 11.x | • Safari | Apple iOS Supplicant 11.x |
| Apple iOS 10.x ² | • Safari | Apple iOS Supplicant 10.x |
| Apple iOS 9.x | • Safari | Apple iOS Supplicant 9.x |
| Apple iOS 8.x | • Safari | Apple iOS Supplicant 8.x |
| Apple iOS 7.x | • Safari | Apple iOS Supplicant 7.x |
| Apple iOS 6.x | • Safari | Apple iOS Supplicant 6.x |
| Apple iOS 5.1 | • Safari | Apple iOS Supplicant 5.1 |
| Apple iOS 5.0.1 | • Safari | Apple iOS Supplicant 5.0.1 |

1. When Apple iOS devices use Protected Extensible Authentication Protocol (PEAP) with Cisco ISE or 802.1x, certificate warnings might be displayed even for publicly trusted certificates. This usually occurs when the public certificate includes a Certificate Revocation List (CRL) distribution point that the iOS device needs to verify. The iOS device cannot verify the CRL without network access. Click Confirm or Accept in the iOS device to authenticate to the network.
2. Tested with Cisco ISE, Release 2.0 patch 3 and Release 2.0.1 patch 1.

If you are using Apple iOS 12.2 or later version, you must manually install the downloaded Certificate/Profile. To do this, choose **Settings > General > Profile** in the Apple iOS device and Click **Install**.

If you are using Apple iOS 12.2 or later version, RSA key size must be 2048 bits or higher. Otherwise, you might see an error while installing the BYOD profile.

Table 5 **Apple Mac OS X**

| Client Machine Operating System | Web Browser | Supplicants (802.1X) | Cisco ISE | Mac OS X Agent | AnyConnect ¹ |
|---------------------------------|--|---------------------------------|-----------|----------------|------------------------------|
| Apple Mac OS X 10.14 | • Apple Safari • Mozilla Firefox • Google Chrome | Apple Mac OS X Supplicant 10.14 | 2.0 | 4.9.5.3 | AnyConnect 4.2, 4.3, and 4.4 |
| Apple Mac OS X 10.13 | • Apple Safari • Mozilla Firefox • Google Chrome | Apple Mac OS X Supplicant 10.13 | 2.0 | 4.9.5.3 | AnyConnect 4.2, 4.3, and 4.4 |
| Apple Mac OS X 10.12 | • Apple Safari • Mozilla Firefox • Google Chrome | Apple Mac OS X Supplicant 10.12 | 2.0 | 4.9.5.3 | AnyConnect 4.2, 4.3, and 4.4 |
| Apple Mac OS X 10.11 | • Apple Safari ² • Mozilla Firefox • Google Chrome ³ | Apple Mac OS X Supplicant 10.11 | 2.0 | 4.9.5.3 | AnyConnect 4.2, 4.3, and 4.4 |

Table 5 Apple Mac OS X

| Client Machine Operating System | Web Browser | Supplicants (802.1X) | Cisco ISE | Mac OS X Agent | AnyConnect ¹ |
|---------------------------------|--|---------------------------------|-----------|----------------|------------------------------|
| Apple Mac OS X 10.10 | <ul style="list-style-type: none"> Apple Safari ⁴ Mozilla Firefox Google Chrome ⁵ | Apple Mac OS X Supplicant 10.10 | 2.0 | 4.9.5.3 | AnyConnect 4.2, 4.3, and 4.4 |
| Apple Mac OS X 10.9 | <ul style="list-style-type: none"> Apple Safari Mozilla Firefox Google Chrome | Apple Mac OS X Supplicant 10.9 | 2.0 | 4.9.5.3 | AnyConnect 4.2, 4.3, and 4.4 |
| Apple Mac OS X 10.8 | <ul style="list-style-type: none"> Apple Safari Mozilla Firefox Google Chrome | Apple Mac OS X Supplicant 10.8 | 2.0 | 4.9.5.3 | AnyConnect 4.2, 4.3, and 4.4 |

1. Cisco ISE 2.0 does not support Anyconnect 4.5 and later.
2. Apple Safari version 6.0 is supported only on Mac OS X 10.7.4 and later versions of the operating system.
3. If you are using Mac OS X clients with Java 7, you cannot download the Agents using Google Chrome browser. Java 7 runs only on 64-bit browsers and Chrome is a 32-bit browser. It is recommended to use either previous versions of Java or other browsers while downloading the Agents.
4. Apple Safari version 6.0 is supported only on Mac OS X 10.7.4 and later versions of the operating system.
5. If you are using Mac OS X clients with Java 7, you cannot download the Agents using Google Chrome browser. Java 7 runs only on 64-bit browsers and Chrome is a 32-bit browser. It is recommended to use either previous versions of Java or other browsers while downloading the Agents.

Table 6 Microsoft Windows ¹

| Client Machine Operating System | Web Browser | Supplicants (802.1X) | Cisco ISE | Cisco NAC Agent ² | Cisco NACWeb Agent ¹⁶ | AnyConnect ³ |
|--------------------------------------|---|------------------------------------|-----------|------------------------------|----------------------------------|------------------------------|
| Microsoft Windows 10 | | | | | | |
| Windows 10 | <ul style="list-style-type: none">Microsoft IE 11Mozilla FirefoxGoogle Chrome | Microsoft Windows 10 802.1X Client | 2.0 | 4.9.5.8 | 4.9.5.4 4.9.5.8 ⁴ | AnyConnect 4.2, 4.3, and 4.4 |
| Microsoft Windows 8 ^{5,6,7} | | | | | | |
| Windows 8.1 | <ul style="list-style-type: none">Microsoft IE 11, 10Mozilla FirefoxGoogle Chrome | Microsoft Windows 8 802.1X Client | 2.0 | 4.9.5.8 | 4.9.5.4 4.9.5.8 ⁸ | AnyConnect 4.2, 4.3, and 4.4 |
| Windows 8 | | | | | | |
| Windows 8 x64 | | | | | | |
| Windows 8 Professional | | | | | | |
| Windows 8 Professional x64 | | | | | | |
| Windows 8 Enterprise | | | | | | |
| Windows 8 Enterprise x64 | | | | | | |
| Microsoft Windows 7 ⁹ | | | | | | |

Table 6 Microsoft Windows ¹

| Client Machine Operating System | Web Browser | Supplicants (802.1X) | Cisco ISE | Cisco NAC Agent ² | Cisco NAC Web Agent ¹⁶ | AnyConnect ³ |
|---------------------------------|---|--|-----------|------------------------------|-----------------------------------|------------------------------|
| Windows 7 Professional | <ul style="list-style-type: none"> Microsoft IE 11, 10 ¹⁰ Mozilla Firefox Google Chrome | <ul style="list-style-type: none"> Microsoft Windows 7 802.1X Client AnyConnect Network Access Manager | 2.0 | 4.9.5.8 | 4.9.5.4 4.9.5.8 ¹¹ | AnyConnect 4.2, 4.3, and 4.4 |
| Windows 7 Professional x64 | | | | | | |
| Windows 7 Ultimate | | | | | | |
| Windows 7 Ultimate x64 | | | | | | |
| Windows 7 Enterprise | | | | | | |
| Windows 7 Enterprise x64 | | | | | | |
| Windows 7 Home Premium | | | | | | |
| Windows 7 Home Premium x64 | | | | | | |
| Windows 7 Home Basic | | | | | | |
| Windows 7 Starter Edition | | | | | | |

1. It is recommended to use the Cisco NAC/Web Agent versions along with the corresponding Cisco ISE version.
2. Cisco NAC Agent and Cisco NAC Web Agent do not support Google Chrome version 45 and later. See [CSCuw19276](#) for more information. We recommend that you use another supported browser such as Internet Explorer 7.0, 8.0 or 9.0 or Mozilla Firefox 3.5.7, 3.6 or 20.x.
3. Cisco ISE 2.0 does not support Anyconnect 4.5 and later.
4. Cisco NAC Web Agent 4.9.5.8 is supported for Cisco ISE 2.0 Patch 4.
5. In Windows 8, Internet Explorer 10 has two modes: Desktop and Metro. In Metro mode, the ActiveX plugins are restricted. You cannot download the Cisco NAC Agent in Metro mode. You must switch to Desktop mode, ensure ActiveX controls are enabled, and then launch Internet Explorer to download the Cisco NAC Agent. (If users are still not able to download Cisco NAC agent, check and enable “compatibility mode.”)
6. When you create a Cisco ISE client provisioning policy to accommodate Windows 8, you must specify the “Windows All” operating system option.
7. Windows 8 RT is not supported.
8. Cisco NAC Web Agent 4.9.5.8 is supported for Cisco ISE 2.0 Patch 4 on Windows 8.1 and Windows 8 operating systems only.
9. Cisco ISE does not support the Windows Embedded operating systems available from Microsoft.
10. When Internet Explorer 10 is installed on Windows 7, to get full network access, you need to update to March 2013 Hotfix ruleset.
11. Cisco NAC Web Agent 4.9.5.8 is supported for Cisco ISE 2.0 Patch 4 and Microsoft IE browser is not supported on Windows 7 operating system with Cisco NAC Web Agent 4.9.5.8.

Table 7 Others

| Client Machine Operating System | Web Browser | Supplicants (802.1X) |
|-----------------------------------|--|-------------------------------------|
| Red Hat Enterprise Linux (RHEL) 5 | <ul style="list-style-type: none"> Google Chrome Mozilla Firefox | Not tested extensively ¹ |

1. The support for 802.1X has not been tested extensively by Cisco, but any 802.1X supplicant is supported as long as it is compliant with the IEEE 802.1X standards.

Validated Operating Systems and Browsers for Sponsor, Guest, and My Devices Portals

These Cisco ISE portals support the following operating system and browser combinations. These portals require that you have cookies enabled in your web browser.

Table 8 *Supported Operating Systems and Browsers*

| Supported Operating System ¹ | Browser Versions |
|--|---|
| Google Android ² 8.x, 7.x ³ , 6.x, 5.x, 4.4.x, 4.2.x, 4.1.2, 4.0.4, 4.0.3, 4.0, 3.2.1, 3.2, 2.3.6, 2.3.3, 2.2.1, 2.2 | <ul style="list-style-type: none"> Native browser Mozilla Firefox |
| Apple iOS 11.x, 10.x ⁴ , 9.x, 8.x, 7.x, 6.1, 6, 5.1, 5.0.1 | <ul style="list-style-type: none"> Safari |
| Apple Mac OS X 10.14, 10.13, 10.12, 10.11, 10.10, 10.9, 10.8, 10.7, 10.6 | <ul style="list-style-type: none"> Mozilla Firefox Safari Google Chrome |
| Microsoft Windows 10, 8, 8.1 ⁵ , 7 ⁶ , Vista | <ul style="list-style-type: none"> Microsoft IE 11, 10⁷ Mozilla Firefox Google Chrome |
| Red Hat Enterprise Linux (RHEL) 5 | <ul style="list-style-type: none"> Mozilla Firefox Google Chrome |

1. The latest two officially-released browser versions are supported for all operating systems except Microsoft Windows; refer to [Table 8](#) for the supported Internet Explorer versions.
2. Because of the open access-nature of Android implementation on available devices, Cisco ISE may not support certain Android OS version and device combinations.
3. Tested with Cisco ISE, Release 2.0 patch 3 and Release 2.0.1 patch 1.
4. Tested with Cisco ISE, Release 2.0 patch 3 and Release 2.0.1 patch 1.
5. In Windows 8, Internet Explorer 10 has two modes: Desktop and Metro. In Metro mode, the ActiveX plugins are restricted. You cannot download the Cisco NAC Agent in Metro mode. You must switch to Desktop mode, ensure ActiveX controls are enabled, and then launch Internet Explorer to download the Cisco NAC Agent. (If users are still not able to download Cisco NAC agent, check and enable “compatibility mode.”)
6. Cisco ISE does not support the Windows Embedded 7 versions available from Microsoft.
7. When Internet Explorer 10 is installed on Windows 7, to get full network access, you need to update to March 2013 Hotfix ruleset.



Note

When a guest user tries to log in using Google Chrome on Windows 7 OS, the login fails. It is recommended to upgrade the browser to Chrome 11 or later.

Validated Devices for On-Boarding and Certificate Provisioning

Cisco Wireless LAN Controller (WLC) 7.2 or above support is required for the BYOD feature. Refer to the [Release Notes for the Cisco Identity Services Engine, Release 2.0](#) for any known issues or caveats.

Table 9 *BYOD On-Boarding and Certificate Provisioning - Validated Devices and Operating Systems*

| Device | Operating System | Single SSID | Dual SSID (open > PEAP (no cert) or open > TLS) | Onboard Method |
|---|---|------------------|---|--|
| Apple iDevice | Apple iOS 11.x, 10.x ¹ , 9.x, 8.x, 7.x, 6.1, 6, 5.1, 5.0.1 | Yes | Yes ² | Apple profile configurations (native) |
| Android | 2.2 and above ³ | Yes | Yes | Cisco Network Setup Assistant |
| Barnes & Noble Nook (Android) HD/HD+ ⁴ | — | — | — | — |
| Windows | Windows 10, 8.1, 8, 7, Vista | Yes ⁵ | Yes | SPW from Cisco.com or Cisco ISE Client Provisioning feed |
| Windows | Mobile 8, Mobile RT, Surface 8, and Surface RT | No | No | — |
| MAC OS X ⁶ | Mac OS X 10.14, 10.13, 10.12, 10.11, 10.10, 10.9, 10.8, 10.7, 10.6 | Yes | Yes | SPW from Cisco.com or Cisco ISE client provisioning feed |

1. Tested with Cisco ISE, Release 2.0 patch 3 and Release 2.0.1 patch 1.

2. Connect to secure SSID after provisioning

3. There are known EAP-TLS issues with Android 4.1.1 devices. Contact your device manufacturer for support.

4. Barnes & Noble Nook (Android) works when it has Google Play Store 2.1.0 installed.

5. While configuring the wireless properties for the connection (Security > Auth Method > Settings > Validate Server Certificate), uncheck the valid server certificate option or if you check this option, ensure that you select the correct root certificate.

6. If you are using Mac OS X clients with Java 7, you cannot download the SPWs using Google Chrome browser. Java 7 runs only on 64-bit browsers and Chrome is a 32-bit browser. It is recommended to use either previous versions of Java or other browsers while downloading the SPWs.

Requirements for CA to Interoperate with Cisco ISE

While using a CA server with Cisco ISE, make sure that the following requirements are met:

- Key size should be 1024, 2048, or higher. In CA server, the key size is defined using certificate template. You can define the key size on Cisco ISE using the supplicant profile.
- Key usage should allow signing and encryption in extension.
- While using GetCACapabilities through the SCEP protocol, cryptography algorithm and request hash should be supported. It is recommended to use RSA + SHA1.
- Online Certificate Status Protocol (OCSP) is supported. This is not directly used in BYOD, but a CA which can act as an OCSP server can be used for certificate revocation.



Note

EJBCA 4.x is not supported by Cisco ISE for proxy SCEP. EJBCA is supported by Cisco ISE for standard EAP authentication like PEAP, EAP-TLS, and so on.

Client Certificate Requirements for Certificate-Based Authentication

For certificate-based authentication with Cisco ISE, the client certificate should meet the following requirements:

- Supported Cryptographic Algorithms: RSA
- Supported Key Sizes: 1024, 2048, or 4096 bits
- Supported Secure Hash Algorithms (SHA): SHA-1 and SHA-2 (includes SHA-256)

Related Documentation

This section covers information on release-specific documentation and platform-specific documentation.

Release-Specific Documents

Table 10 *Product Documentation for Cisco Identity Services Engine*

| Document Title | Location |
|--|---|
| <i>Release Notes for the Cisco Identity Services Engine, Release 2.0</i> | http://www.cisco.com/c/en/us/support/security/identity-services-engine/products-release-notes-list.html |
| <i>Cisco Identity Services Engine Network Component Compatibility, Release 2.0</i> | http://www.cisco.com/c/en/us/support/security/identity-services-engine/products-device-support-tables-list.html |
| <i>Cisco Identity Services Engine Admin Guide, Release 2.0</i> | http://www.cisco.com/c/en/us/support/security/identity-services-engine/products-installation-and-configuration-guides-list.html |
| <i>Cisco Identity Services Engine Hardware Installation Guide, Release 2.0</i> | http://www.cisco.com/c/en/us/support/security/identity-services-engine/products-installation-guides-list.html |
| <i>Cisco Identity Services Engine Upgrade Guide, Release 2.0</i> | http://www.cisco.com/c/en/us/support/security/identity-services-engine/products-installation-guides-list.html |
| <i>Cisco Identity Services Engine, Release 2.0 Migration Tool Guide</i> | http://www.cisco.com/c/en/us/support/security/identity-services-engine/products-installation-guides-list.html |
| <i>Cisco Identity Services Engine Sponsor Portal User Guide, Release 2.0</i> | http://www.cisco.com/c/en/us/support/security/identity-services-engine/products-user-guide-list.html |
| <i>Cisco Identity Services Engine CLI Reference Guide, Release 2.0</i> | http://www.cisco.com/c/en/us/support/security/identity-services-engine/products-command-reference-list.html |

Table 10 **Product Documentation for Cisco Identity Services Engine (continued)**

| Document Title | Location |
|--|---|
| <i>Cisco Identity Services Engine API Reference Guide, Release 2.0</i> | http://www.cisco.com/c/en/us/support/security/identity-services-engine/products-command-reference-list.html |
| <i>Regulatory Compliance and Safety Information for Cisco Identity Services Engine 3400 Series Appliance</i> | http://www.cisco.com/c/en/us/support/security/identity-services-engine/products-installation-guides-list.html |
| <i>Cisco ISE In-Box Documentation and China RoHS Pointer Card</i> | http://www.cisco.com/c/en/us/support/security/identity-services-engine/products-documentation-roadmaps-list.html |

Platform-Specific Documents

Links to other platform-specific documentation are available at the following locations:

- Cisco ISE
<http://www.cisco.com/c/en/us/support/security/identity-services-engine/tsd-products-support-series-home.html>
- Cisco Secure ACS
<http://www.cisco.com/c/en/us/support/security/secure-access-control-system/tsd-products-support-series-home.html>
- Cisco NAC Appliance
<http://www.cisco.com/c/en/us/support/security/nac-appliance-clean-access/tsd-products-support-series-home.html>
- Cisco NAC Profiler
<http://www.cisco.com/c/en/us/support/security/nac-profiler/tsd-products-support-series-home.html>
- Cisco NAC Guest Server
<http://www.cisco.com/c/en/us/support/security/nac-guest-server/tsd-products-support-series-home.html>

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

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