



## New and Changed Information

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This chapter provides release-specific information about all features.

- [New and Changed Feature Information, on page 1](#)

## New and Changed Feature Information

This table summarizes the new and changed features, the supported platforms, and links to features.

*Table 1: New and Changed Feature Information*

Feature	Release & Platform
Provisioning	

Feature	Release & Platform
Zero-Touch Provisioning	<p data-bbox="776 289 1105 317">Cisco IOS XE Everest 16.5.1a</p> <ul data-bbox="813 338 1219 520" style="list-style-type: none"> <li data-bbox="813 338 1219 365">• Cisco Catalyst 3650 Series Switches</li> <li data-bbox="813 386 1219 413">• Cisco Catalyst 3850 Series Switches</li> <li data-bbox="813 434 1219 462">• Cisco Catalyst 9300 Series Switches</li> <li data-bbox="813 483 1219 510">• Cisco Catalyst 9500 Series Switches</li> </ul> <p data-bbox="776 554 1105 581">Cisco IOS XE Everest 16.5.1b</p> <ul data-bbox="813 602 1325 630" style="list-style-type: none"> <li data-bbox="813 602 1325 630">• Cisco 4000 Series Integrated Services Routers</li> </ul> <p data-bbox="776 665 1089 693">Cisco IOS XE Everest 16.6.2</p> <ul data-bbox="813 714 1219 741" style="list-style-type: none"> <li data-bbox="813 714 1219 741">• Cisco Catalyst 9400 Series Switches</li> </ul> <p data-bbox="776 777 1052 804">Cisco IOS XE Fuji 16.8.1</p> <ul data-bbox="813 825 1117 1062" style="list-style-type: none"> <li data-bbox="813 825 1117 852">• Cisco ASR 1004 Router</li> <li data-bbox="813 873 1117 900">• Cisco ASR 1006 Router</li> <li data-bbox="813 921 1117 949">• Cisco ASR 1006-X Router</li> <li data-bbox="813 970 1117 997">• Cisco ASR 1009-X Router</li> <li data-bbox="813 1018 1117 1045">• Cisco ASR 1013 Router</li> </ul> <p data-bbox="776 1094 1065 1121">Cisco IOS XE Fuji 16.8.1a</p> <ul data-bbox="813 1142 1422 1169" style="list-style-type: none"> <li data-bbox="813 1142 1422 1169">• Cisco Catalyst 9500-High Performance Series Switches</li> </ul>

Feature	Release & Platform
Zero Touch Provisioning: HTTP Copy	<p>Cisco IOS XE Everest 16.6.1</p> <ul style="list-style-type: none"> <li>• Cisco 4000 Series Integrated Services Routers</li> <li>• Cisco Catalyst 3650 Series Switches</li> <li>• Cisco Catalyst 3850 Series Switches</li> <li>• Cisco Catalyst 9300 Series Switches</li> <li>• Cisco Catalyst 9500 Series Switches</li> </ul> <p>Cisco IOS XE Everest 16.6.2</p> <ul style="list-style-type: none"> <li>• Cisco Catalyst 9400 Series Switches</li> </ul> <p>Cisco IOS XE Fuji 16.8.1</p> <ul style="list-style-type: none"> <li>• Cisco ASR 1004 Router</li> <li>• Cisco ASR 1006 Router</li> <li>• Cisco ASR 1006-X Router</li> <li>• Cisco ASR 1009-X Router</li> <li>• Cisco ASR 1013 Router</li> </ul> <p>Cisco IOS XE Fuji 16.8.1a</p> <ul style="list-style-type: none"> <li>• Cisco Catalyst 9500-High Performance Series Switches</li> </ul>
iPXE	<p>Cisco IOS XE Denali 16.3.2 and Cisco IOS XE Everest 16.5.1a</p> <ul style="list-style-type: none"> <li>• Cisco Catalyst 3650 Series Switches</li> <li>• Cisco Catalyst 3650 Series Switches</li> </ul> <p>Cisco IOS XE Everest 16.6.1</p> <ul style="list-style-type: none"> <li>• Cisco Catalyst 9300 Series Switches</li> <li>• Cisco Catalyst 9500 Series Switches</li> </ul> <p>Cisco IOS XE Everest 16.6.2</p> <ul style="list-style-type: none"> <li>• Cisco Catalyst 9400 Series Switches</li> </ul> <p>Cisco IOS XE Fuji 16.8.1a</p> <ul style="list-style-type: none"> <li>• Cisco Catalyst 9500-High Performance Series Switches</li> </ul> <p>Cisco IOS XE Fuji 16.9.2</p> <ul style="list-style-type: none"> <li>• Cisco Catalyst 9200 Series Switches</li> </ul>
Shells and Scripting	

Feature	Release & Platform
Guest Shell	<p>Cisco IOS XE Everest 16.5.1a</p> <ul style="list-style-type: none"> <li>• Cisco Catalyst 3650 Series Switches</li> <li>• Cisco Catalyst 3850 Series Switches</li> <li>• Cisco Catalyst 9300 Series Switches</li> <li>• Cisco Catalyst 9500 Series Switches</li> </ul> <p>Cisco IOS XE Everest 16.5.1b</p> <ul style="list-style-type: none"> <li>• Cisco 4000 Series Integrated Services Routers</li> </ul> <p>Cisco IOS XE Everest 16.6.2</p> <ul style="list-style-type: none"> <li>• Cisco Catalyst 9400 Series Switches</li> </ul> <p>Cisco IOS XE Fuji 16.7.1</p> <ul style="list-style-type: none"> <li>• Cisco ASR 1000 Aggregation Services Routers (ASR1001-X, ASR1001-HX, ASR1002-X, ASR1002-HX)</li> <li>• Cisco Cloud Services Router 1000V Series</li> </ul> <p>Cisco IOS XE Fuji 16.8.1a</p> <ul style="list-style-type: none"> <li>• Cisco Catalyst 9500-High Performance Series Switches</li> </ul> <p>Cisco IOS XE Gibraltara 16.11.1</p> <ul style="list-style-type: none"> <li>• Cisco Catalyst 9800-40 Wireless Controllers</li> <li>• Cisco Catalyst 9800-80 Series Wireless Controllers</li> </ul>

Feature	Release & Platform
Python APIs	<p data-bbox="816 296 1138 321">Cisco IOS XE Everest 16.5.1a</p> <ul data-bbox="850 342 1256 527" style="list-style-type: none"><li data-bbox="850 342 1256 367">• Cisco Catalyst 3650 Series Switches</li><li data-bbox="850 394 1256 420">• Cisco Catalyst 3850 Series Switches</li><li data-bbox="850 447 1256 472">• Cisco Catalyst 9300 Series Switches</li><li data-bbox="850 499 1256 525">• Cisco Catalyst 9500 Series Switches</li></ul> <p data-bbox="816 562 1138 588">Cisco IOS XE Everest 16.5.1b</p> <ul data-bbox="850 609 1360 634" style="list-style-type: none"><li data-bbox="850 609 1360 634">• Cisco 4000 Series Integrated Services Routers</li></ul> <p data-bbox="816 672 1127 697">Cisco IOS XE Everest 16.6.2</p> <ul data-bbox="850 718 1256 743" style="list-style-type: none"><li data-bbox="850 718 1256 743">• Cisco Catalyst 9400 Series Switches</li></ul> <p data-bbox="816 781 1089 806">Cisco IOS XE Fuji 16.7.1</p> <ul data-bbox="850 827 1523 940" style="list-style-type: none"><li data-bbox="850 827 1523 890">• Cisco ASR 1000 Aggregation Services Routers (ASR1001-X, ASR1001-HX, ASR1002-X, ASR1002-HX)</li><li data-bbox="850 911 1328 936">• Cisco Cloud Services Router 1000V Series</li></ul> <p data-bbox="816 978 1503 1003">In Cisco IOS XE Fuji 16.8.1a, this feature was implemented on .</p> <ul data-bbox="850 1024 1463 1050" style="list-style-type: none"><li data-bbox="850 1024 1463 1050">• Cisco Catalyst 9500-High Performance Series Switches</li></ul>

Feature	Release & Platform
Python CLI Module	<p>Cisco IOS XE Everest 16.5.1a</p> <ul style="list-style-type: none"> <li>• Cisco Catalyst 3650 Series Switches</li> <li>• Cisco Catalyst 3850 Series Switches</li> <li>• Cisco Catalyst 9300 Series Switches</li> <li>• Cisco Catalyst 9500 Series Switches</li> </ul> <p>Cisco IOS XE Everest 16.5.1b</p> <ul style="list-style-type: none"> <li>• Cisco 4000 Series Integrated Services Routers</li> </ul> <p>Cisco IOS XE Everest 16.6.2</p> <ul style="list-style-type: none"> <li>• Cisco Catalyst 9400 Series Switches</li> </ul> <p>Cisco IOS XE Fuji 16.7.1</p> <ul style="list-style-type: none"> <li>• Cisco ASR 1000 Aggregation Services Routers (ASR1001-X, ASR1001-HX, ASR1002-X, ASR1002-HX)</li> <li>• Cisco Cloud Services Router 1000V Series</li> </ul> <p>Cisco IOS XE Fuji 16.8.1</p> <ul style="list-style-type: none"> <li>• Cisco 4000 Series Integrated Services Router models with a minimum of 4 GB RAM.</li> <li>• Cisco ASR 1004 Router</li> <li>• Cisco ASR 1006 Router</li> <li>• Cisco ASR 1006-X Router</li> <li>• Cisco ASR 1009-X Router</li> <li>• Cisco ASR 1013 Router</li> </ul> <p>Cisco IOS XE Fuji 16.8.1a</p> <ul style="list-style-type: none"> <li>• Cisco Catalyst 9500-High Performance Series Switches</li> </ul>

Feature	Release & Platform
EEM Python Module	<p>Cisco IOS XE Everest 16.5.1a</p> <ul style="list-style-type: none"><li>• Cisco Catalyst 3650 Series Switches</li><li>• Cisco Catalyst 3850 Series Switches</li><li>• Cisco Catalyst 9300 Series Switches</li><li>• Cisco Catalyst 9500 Series Switches</li></ul> <p>Cisco IOS XE Everest 16.5.1b</p> <ul style="list-style-type: none"><li>• Cisco 4000 Series Integrated Services Routers</li></ul> <p>Cisco IOS XE Everest 16.6.2.</p> <ul style="list-style-type: none"><li>• Cisco Catalyst 9400 Series Switches</li></ul> <p>Cisco IOS XE Fuji 16.7.1</p> <ul style="list-style-type: none"><li>• Cisco ASR 1000 Aggregation Services Routers (ASR1001-X, ASR1001-HX, ASR1002-X, ASR1002-HX)</li><li>• Cisco Cloud Services Router 1000V Series</li></ul> <p>Cisco IOS XE Fuji 16.8.1a</p> <ul style="list-style-type: none"><li>• Cisco Catalyst 9500-High Performance Series Switches</li></ul>
Model-Driven Programmability	

Feature	Release & Platform
NETCONF Network Management Interface	<p>Cisco IOS XE Denali 16.3.1</p> <ul style="list-style-type: none"> <li>• Cisco Catalyst 3650 Series Switches</li> <li>• Cisco Catalyst 3850 Series Switches</li> <li>• Cisco 4000 Series Integrated Services Routers</li> </ul> <p>Cisco IOS XE Everest 16.5.1a</p> <ul style="list-style-type: none"> <li>• Cisco Catalyst 9300 Series Switches</li> <li>• Cisco Catalyst 9500 Series Switches</li> </ul> <p>Cisco IOS XE Everest 16.6.2</p> <ul style="list-style-type: none"> <li>• Cisco Catalyst 9400 Series Switches</li> </ul> <p>Cisco IOS XE Fuji 16.7.1</p> <ul style="list-style-type: none"> <li>• Cisco ASR 900 Series Aggregation Services Routers</li> <li>• Cisco Network Convergence System 4200 Series</li> </ul> <p>Cisco IOS XE Fuji 16.9.2</p> <ul style="list-style-type: none"> <li>• Cisco Catalyst 9200 Series Switches</li> </ul> <p>Cisco IOS XE Gibraltar 16.10.1</p> <ul style="list-style-type: none"> <li>• Cisco Catalyst 9800 Series Wireless Controllers</li> <li>• Cisco Network Convergence System 520 Series</li> <li>• Cisco IR1101 Integrated Services Router Rugged</li> </ul>



Feature	Release & Platform
NETCONF and RESTCONF IPv6 Support	Cisco IOS XE Fuji 16.8.1a <ul style="list-style-type: none"> <li>• Cisco 1000 Series Integrated Services Routers</li> <li>• Cisco ASR 1000 Series Aggregated Services Routers</li> <li>• Cisco ASR 900 Series Aggregated Services Routers</li> <li>• Cisco Catalyst 3650 Series Switches</li> <li>• Cisco Catalyst 3850 Series Switches</li> <li>• Cisco Catalyst 9300 Series Switches</li> <li>• Cisco Catalyst 9400 Series Switches</li> <li>• Cisco Catalyst 9500 Series Switches</li> <li>• Cisco cBR-8 Converged Broadband Router</li> <li>• Cisco Cloud Services Router 1000V Series</li> <li>• Cisco ISR 4000 Series Integrated Services Routers</li> </ul>
gNMI Protocol	Cisco IOS XE Fuji 16.8.1a <ul style="list-style-type: none"> <li>• Cisco Catalyst 9300 Series Switches</li> <li>• Cisco Catalyst 9400 Series Switches</li> <li>• Cisco Catalyst 9500 Series Switches</li> </ul>
Model-Based AAA	Cisco IOS XE Fuji 16.8.1 <ul style="list-style-type: none"> <li>• Cisco 1000 Series Integrated Services Routers</li> <li>• Cisco 4000 Series Integrated Services Routers</li> <li>• Cisco ASR 1000 Series Aggregation Services Routers</li> <li>• Cisco ASR 900 Series Aggregation Services Routers</li> <li>• Cisco ASR 920 Series Aggregation Services Routers</li> <li>• Cisco Cloud Services Router 1000v Series</li> <li>• Cisco Network Convergence System 4200</li> </ul> Cisco IOS XE Fuji 16.8.1a <ul style="list-style-type: none"> <li>• Cisco Catalyst 3650 Series Switches</li> <li>• Cisco Catalyst 3850 Series Switches</li> <li>• Cisco Catalyst 9300 Series Switches</li> <li>• Cisco Catalyst 9400 Series Switches</li> <li>• Cisco Catalyst 9500 Series Switches</li> </ul>

Feature	Release & Platform
Model-Driven Telemetry NETCONF Dial-In	<p>Cisco IOS XE Everest 16.6.1</p> <ul style="list-style-type: none"> <li>• Cisco Catalyst 3650 Series Switches</li> <li>• Cisco Catalyst 3850 Series Switches</li> <li>• Cisco Catalyst 9300 Series Switches</li> <li>• Cisco Catalyst 9500 Series Switches</li> </ul> <p>Cisco IOS XE Everest 16.6.2</p> <ul style="list-style-type: none"> <li>• Cisco Catalyst 9400 Series Switches</li> </ul> <p>Cisco IOS XE Fuji 16.7.1</p> <ul style="list-style-type: none"> <li>• Cisco 4000 Series Integrated Services Routers</li> <li>• Cisco ASR 1001-HX Series Aggregation Services Routers</li> <li>• Cisco ASR 1001-X Series Aggregation Services Routers</li> <li>• Cisco ASR 1002-HX Series Aggregation Services Routers</li> <li>• Cisco ASR 1002-X Series Aggregation Services Routers</li> </ul> <p>Cisco IOS XE Fuji 16.8.1</p> <ul style="list-style-type: none"> <li>• Cisco ASR 1000 RP2 and RP3 Series Aggregation Services Routers</li> </ul> <p>Cisco IOS XE Fuji 16.8.1a</p> <ul style="list-style-type: none"> <li>• Cisco 9500-High Performance Series Switches</li> </ul> <p>Cisco IOS XE Fuji 16.9.1</p> <ul style="list-style-type: none"> <li>• Cisco ASR 900 Series Aggregation Services Routers</li> <li>• Cisco ASR 920 Series Aggregation Services Routers</li> <li>• Cisco cBR-8 Converged Broadband Router</li> <li>• Cisco Network Convergence System 4200 Series</li> </ul> <p>Cisco IOS XE Fuji 16.9.2</p> <ul style="list-style-type: none"> <li>• Cisco Catalyst 9200 Series Switches</li> </ul> <p>Cisco IOS XE Gibraltar 16.10.1</p> <ul style="list-style-type: none"> <li>• Cisco IR1101 Integrated Services Router Rugged</li> <li>• Cisco Cloud Services Router 1000v</li> <li>• Cisco Network Convergence System 520 Series</li> </ul>

Feature	Release & Platform
Model-Driven Telemetry gRPC Dial-out	<p>In Cisco IOS XE Gibraltar 16.10.1, the gRPC Dial-Out feature was introduced on the following platforms:</p> <ul style="list-style-type: none"> <li>• Cisco 1000 Series Integrated Services Routers</li> <li>• Cisco IR1101 Integrated Services Router Rugged</li> <li>• Cisco ASR 1000 Series Aggregation Services Routers</li> <li>• Cisco ASR 900 Series Aggregation Services Routers</li> <li>• Cisco ASR 920 Series Aggregation Services Routers</li> <li>• Cisco Catalyst 9200 Series Switches</li> <li>• Cisco Catalyst 9300 Series Switches</li> <li>• Cisco Catalyst 9400 Series Switches</li> <li>• Cisco Catalyst 9500 and 9500-High Performance Series Switches</li> <li>• Cisco cBR-8 Converged Broadband Router</li> <li>• Cisco Cloud Services Router 1000V Series</li> <li>• Cisco Network Convergence System 4200</li> <li>• Cisco Network Convergence System 520</li> </ul>
In-Service Model Updates	<p>Cisco IOS XE Everest 16.5.1a</p> <ul style="list-style-type: none"> <li>• Cisco Catalyst 9300 Series Switches</li> <li>• Cisco Catalyst 9500 Series Switches</li> </ul> <p>Cisco IOS XE Everest 16.5.1b</p> <ul style="list-style-type: none"> <li>• Cisco 4000 Series Integrated Services Routers</li> </ul> <p>Cisco IOS XE Everest 16.6.1</p> <ul style="list-style-type: none"> <li>• Cisco Catalyst 3650 Series Switches</li> <li>• Cisco Catalyst 3850 Series Switches</li> </ul> <p>Cisco IOS XE Everest 16.6.2</p> <ul style="list-style-type: none"> <li>• Cisco Catalyst 9400 Series Switches</li> </ul> <p>Cisco IOS XE Fuji 16.7.1</p> <ul style="list-style-type: none"> <li>• Cisco ASR 1000 Aggregation Services Routers</li> </ul> <p>Cisco IOS XE Fuji 16.8.1a</p> <ul style="list-style-type: none"> <li>• Cisco Catalyst 9500-High Performance Series Switches.</li> </ul>

Feature	Release & Platform
RESTCONF Network Management Interface	<p>Cisco IOS XE Everest 16.6.1</p> <ul style="list-style-type: none"> <li>• Cisco 4000 Series Integrated Services Routers</li> <li>• Cisco ASR 1000 Aggregation Services Routers (ASR1001-HX and ASR1002-HX)</li> <li>• Cisco Cloud Services Router 1000V Series</li> </ul> <p>Cisco IOS XE Fuji 16.7.1</p> <ul style="list-style-type: none"> <li>• Cisco ASR 9xx Series Aggregation Services Routers</li> <li>• Cisco Network Convergence System 4200 Series</li> </ul> <p>Cisco IOS XE Fuji 16.8.1a</p> <ul style="list-style-type: none"> <li>• Cisco Catalyst 3650 Series Switches</li> <li>• Cisco Catalyst 3850 Series Switches</li> <li>• Cisco Catalyst 9300 Series Switches</li> <li>• Cisco Catalyst 9400 Series Switches</li> <li>• Cisco Catalyst 9500 Series Switches</li> </ul> <p>Cisco IOS XE Fuji 16.9.2</p> <ul style="list-style-type: none"> <li>• Cisco Catalyst 9200 Series Switches</li> </ul> <p>Cisco IOS XE Gibraltar 16.10.1</p> <ul style="list-style-type: none"> <li>• Cisco Network Convergence System 520 Series</li> <li>• Cisco IR1101 Integrated Services Router Rugged</li> </ul>
Application Hosting	
Application Hosting	<p>Cisco IOS XE Fuji 16.9.1</p> <ul style="list-style-type: none"> <li>• Cisco Catalyst 9300 Series Switches</li> <li>• Cisco Catalyst 9400 Series Switches</li> <li>• Cisco Catalyst 9500 Series Switches</li> </ul>
<b>OpenFlow</b>	
OpenFlow	<p>Cisco IOS XE Fuji 16.9.1</p> <ul style="list-style-type: none"> <li>• Catalyst 9300 Series Switches</li> <li>• Catalyst 9400 Series Switches</li> <li>• Catalyst 9500 Series Switches</li> <li>• Catalyst 9500 Series High Performance Switches</li> </ul>