



# Release Notes for Cisco IWAN

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This release notes document provides information about Cisco Intelligent WAN (IWAN) Solution, Release 2.1.

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## Introduction

This release notes provide a summary of the components in the latest release of the Cisco Intelligent Wide Area Network (Cisco IWAN) Solution.

Cisco IWAN is a prescriptive solution for leveraging multiple transport providers, including low cost business grade broadband services as part of your WAN transport strategy. IWAN is a suite of components that brings all the WAN optimization, performance routing, and security levels of leased lines and expensive MPLS VPN services to the public Internet. IWAN makes it possible to get the performance, reliability and security benefits of private and virtual private network services while allowing the option of using more attractively priced service offerings and require simpler peering relationships with the transport provider. The same prescriptive design may be used with any transport provider; an important flexibility to have when multiple regional providers are needed.

Cisco IWAN can be implemented using Command Line Interface (CLI) commands on the routers of the hub and branch sites. Find out further information on implementing Cisco IWAN in the Cisco IWAN technology design guides—see , [page 6](#).

For further information on Cisco IWAN, see , [page 6](#).

## What's New in Cisco IWAN

The following are the new features for Cisco IWAN 2.1:

- [PfRv3 Multiple Nexthop or Multiple Datacenter Support, page 2](#)
- [Serviceability Features, page 2](#)

### PfRv3 Multiple Nexthop or Multiple Datacenter Support

The PfRv3 Transit Multiple Nexthop or Multiple Datacenter Support feature enables Cisco IWAN on multiple nexthop using the same destination prefix. Cisco IWAN Datacenter (POP) in a domain can reach the same branch over multiple tunnel interfaces available across multiple Cisco IWAN Datacenter border routers.

**Load Sharing feature**—It is a common practice to deploy multiple Performance Routing (PfR) border routers in the hub and transit sites to enable horizontal scaling at the hub. With transit site support, there may be a desire to share the load from all the branches between different Datacenters. Load Sharing is a PfRv3 feature and is introduced in Cisco IWAN 2.1 to address Cisco IWAN requirements. This feature works on the branch site by randomly choosing one of the next hops on the best performing path or next hop combination. The next hops are chosen based on the traffic class signature, namely, VPN routing and forwarding (VRF), destination prefix, differentiated services code point (DSCP), application ID, and source site ID to pick a next hop from the best performing candidate paths. This feature is enabled by default.

**Transit Site Affinity feature**—In deployments with multiple transit sites or hubs, some branches prefer a specific transit site over the other sites. The affinity of a branch to a transit site is configured by altering the routing metrics for prefix advertisements to the branch from the transit site. The Transit Site Affinity feature is introduced in Cisco IWAN 2.1 to address this specific requirement. This feature works on branches and affects traffic classes sourced from the branch and destined to the hub or transit site prefixes. PfR considers routing metrics to choose between the best performing paths to the preferred transit site (both primary and fallback paths to a site will be candidates with primary path being honored before the fallback path) before switching to the other transit site.

For detailed information about this feature, see the following Cisco document:

<http://www.cisco.com/c/en/us/td/docs/ios-xml/ios/pfrv3/configuration/15-mt/pfrv3-15-mt-book/pfrv3-transit-site.html>

### Serviceability Features

- The **show ip route** command displays the routing protocol best path state and not the PfR path selection and has been enhanced with a new tag to indicate the path PfR is overriding.
- The **show domain name master traffic-class** displays the last 5 Threshold Crossing Alarms (TCA) events and the actions of these events.
- Use the **ping** and **traceroute** commands to specify the ingress interface and differentiated services code point (DSCP) values. These commands enable ping and traceroute packets to follow the PfRv3 forwarding decision.

## System Requirements

The following sections describe the system requirements for Cisco IWAN Release 2.1.

### Hardware and Software Requirements

Cisco IWAN, Release 2.1 supports the following Cisco devices and software releases.

Platform	Cisco IOS Software Release	Hub/Remote Site
Cisco ISR 4000 Series Routers	Cisco IOS XE 3.16.1aS or 15.5(3)S1a or higher maintenance releases of Cisco IOS XE 3.16.x.	Hub or remote site.
Cisco ASR 1000 Series Routers	Cisco IOS XE 3.16.1aS or 15.5(3)S1a or higher maintenance releases of Cisco IOS XE 3.16.x.	Hub site.
Cisco CSR 1000v Series Routers	Cisco IOS XE 3.16.1aS or 15.5(3)S1a or higher maintenance releases of Cisco IOS XE 3.16.x.	Hub site (Master Controller only).
Cisco ISR-G2 Series Routers	Cisco IOS 15.5(3)M1 or higher maintenance releases of Cisco IOS 15.5(3)M.	Remote site.

#### Cisco Wide Area Application Services

Cisco Wide Area Application Services (WAAS) release 5.5.3 or higher is supported by Cisco IWAN 2.1

#### Cisco Prime Infrastructure

Cisco Prime Infrastructure release 3.0.2 or higher supports Cisco IWAN 2.1.

#### IWAN Controller

IWAN Controller Release 1.0 is supported by Cisco IWAN 2.1. This is the first release of Cisco IWAN controller.

#### LiveAction

LiveAction version 4.2.4 or higher is suggested for Cisco IWAN 2.1.

## Limitations and Restrictions

This section lists limitations and restrictions in Cisco IWAN 2.1.

- In the IWAN POP, the PfR Master Controller must be separate from a PfR border router and not combined together on the same router.
- A single tunnel interface is supported for each border router at the IWAN POP.

## Caveats

- [Cisco Bug Search Tool, page 4](#)
- [Caveats for Cisco IWAN 2.1, page 5](#)

## Caveats

## Cisco Bug Search Tool

For more information about how to use the Cisco [Bug Search Tool](#), including how to set email alerts for bugs and to save bugs and searches, you can also see the Help & FAQ within the Bug Search Tool.

### About the Bug Search Tool

This web-based tool provides you with access to the Cisco bug tracking system, which maintains information about bugs and vulnerabilities in this product and other Cisco hardware and software products. Within the Cisco Bug Search Tool, each bug is given a unique identifier (ID) with a pattern of CSCxxNNNNN, where x is any letter (a-z) and N is any number (0-9). The bug IDs are frequently referenced in Cisco documentation, such as Security Advisories, Field Notices and other Cisco support documents. Technical Assistance Center (TAC) engineers or other Cisco staff can also provide you with the ID for a specific bug. The Cisco Bug Search Tool enables you to filter the bugs so that you only see those in which you are interested.

In addition to being able to search for a specific bug ID, or for all bugs in a product and release, you can filter the open and/or resolved bugs by one or more of the following criteria:

- Last modified date
- Status, such as fixed (resolved) or open
- Severity
- Support cases

You can save searches that you perform frequently. You can also bookmark the URL for a search and email the URL for those search results

### Before You Begin

You must have a Cisco.com account to log in and access the Cisco Bug Search Tool. If you do not have one, you can register for an account.

### Using the Bug Search Tool

1. In your browser, navigate to the Cisco Bug Search Tool.
2. If you are redirected to a Log In page, enter your registered Cisco.com username and password and then, click Log In.
3. To search for a specific bug, enter the bug ID in the Search For field and press Enter.
4. To search for bugs related to a specific software release, do the following:

In the Product field, choose Series/Model from the drop-down list and then enter the product name in the text field. If you begin to type the product name, the Cisco Bug Search Tool provides you with a drop-down list of the top ten matches. If you do not see this product listed, continue typing to narrow the search results.

In the Releases field, enter the release for which you want to see bugs.

The Cisco Bug Search Tool displays a preview of the results of your search below your search criteria.

5. To see more content about a specific bug, you can do the following:
  - Mouse over a bug in the preview to display a pop-up with more information about that bug.
  - Click on the hyperlinked bug headline to open a page with the detailed bug information.

## Caveats for Cisco IWAN 2.1

This section provides information about the caveats in Cisco IWAN 2.1.

CSCur64384	IP over DHCP failed when dynamically change from static to dhcp ip
CSCuw27078	Missing packet console mssgs in an IWAN environment under high traffic and CPU utilization conditions on ISR4351
CSCuw57441	DMVPN tunnel flapping with PfRv3
CSCuw69595	PfRv3-shut/no shut in DMVPN branch crashes branch and hub master controller
CSCuw09342	PfRv3/EIGRP-"SAF data retrieve fails" errors on the router console.
CSCuw20234	PfRv3-ASR1k:- Tunnel not deleted after hub master controller and branch reload
CSCuw63784	IWAN--memory leak in platform_dp when NBAR is enabled
CSCuw80134	Flexible NetFlow exceeds recommended maximum memory on ASR1k
CSCuw88175	QFP DRAM running out of memory with high number of flows
CSCux05879	PfRv3--Network event message in the output of "show domain master traffic-class"

## Software Download Information

The following table provides the path on [Download Software](#) page for downloading the software for IWAN 2.1.

Software	Path
Cisco IOS XE Software	Products > IOS and NX-OS Software > IOS XE > IOS XE S > IOS XE 3S > Routers > <i>platform</i> > Software on Chassis > IOS XE Software-3.16.1aS
Cisco IOS Software	Products > Routers > Branch Routers > <i>platform</i> > Software on Chassis > IOS Software-15.5.3M1(ED)
Prime Infrastructure 3.0.2 Software	Products > Cloud and Systems Management > Routing and Switching Management > Network Management Solutions > Prime Infrastructure > Prime Infrastructure 3.0 > Prime Infrastructure Patches-3.0.2
Cisco Application Policy Infrastructure Controller Enterprise Module (APIC-EM) 1.0 Software	Products > Cloud and Systems Management > Policy and Automation Controllers > Application Policy Infrastructure Controller Enterprise Module (APIC-EM) > APIC-EM Software-1.0
Cisco Wide Area Application Services Software	Products > Application Networking Services > Wide Area Application Services > Wide Area Application Services (WAAS) Software > Wide Area Application Services (WAAS) Software-5.5.3

## Related Documentation

Documentation	Description
<a href="#">Cisco Application Policy Infrastructure Controller Enterprise Module Deployment Guide</a>	Information about the underlying Cisco APIC-EM product including deployment steps, verification, and troubleshooting.
<a href="#">Cisco IWAN Technology Design Guides</a>	Cisco IWAN designs are explained in the Cisco IWAN technology design guides. Look for the guides in the Cisco Validated Designs (CVDs) at <a href="http://www.cisco.com/c/en/us/solutions/enterprise/design-zone-branch-wan/cvd_ent_wan.html">http://www.cisco.com/c/en/us/solutions/enterprise/design-zone-branch-wan/cvd_ent_wan.html</a>
<a href="#">Cisco Open Plug-n-Play Agent Configuration Guide</a>	PnP Agent documentation for Cisco IOS XE.
<a href="#">Cisco Prime Infrastructure 3.0</a>	Refer to this guide for information about Cisco Prime Infrastructure, which can be used to configure Cisco IWAN.
<a href="#">Cisco Prime Infrastructure 3.0 Release Notes</a>	Description of the features and caveats for Cisco Prime Infrastructure.
<a href="#">Configuration Guide for Network Plug and Play on APIC-EM</a>	Documents the PnP server application in the APIC-EM.
<a href="#">Live Action</a>	Documentation on LiveAction software.
<a href="#">Release Notes for Cisco Intelligent Wide Area Network Application (Cisco IWAN App)</a>	Description of the features, system requirements, prerequisites, and caveats for the Cisco Intelligent Wide Area Network Application (Cisco IWAN App) on APIC-EM.
<a href="#">Release Notes for Cisco Network Plug and Play</a>	Description of the features and caveats for Cisco Network Plug and Play.
<a href="#">Release Notes for the Cisco Application Policy Infrastructure Controller Enterprise Module</a>	Description of the features and caveats for the Cisco Application Policy Infrastructure Controller Enterprise Module (Cisco APIC-EM).
<a href="#">Solution Guide for Cisco Network Plug and Play</a>	Overview of the Plug and Play solution, component descriptions, summary of major use cases, and basic deployment requirements, guidelines, limitations, prerequisites, and troubleshooting tips.
<a href="#">Software Configuration Guide for Cisco IWAN on APIC-EM</a>	Information about the installation, deployment, configuration of Cisco IWAN on APIC-EM. Explains the Cisco IWAN GUI and how to manage connected devices and hosts within your network.

## Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, using the Cisco Bug Search Tool (BST), submitting a service request, and gathering additional information, see [What's New in Cisco Product Documentation](#).

To receive new and revised Cisco technical content directly to your desktop, you can subscribe to the [What's New in Cisco Product Documentation RSS feed](#). The RSS feeds are a free service.

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