

JUNIPER MIST IoT ASSURANCE OVERVIEW

Product Overview

Juniper Mist IoT Assurance is a cloud service that simplifies IT operations and secures connections for headless IoT as well as BYOD devices via a Multiple Pre-Shared Key (MPSK) mechanism. It incorporates a full suite of access control functionality leveraging MPSK or Private Pre-Shared Key (PPSK) as a new type of identity and policy vector.

IoT Assurance provides a simple yet comprehensive way to onboard client devices without relying on a client MAC address, allowing dynamic traffic engineering and enforcing granular network access control. The service reduces overall IT operational cost with Pre-Shared Key (PSK) life cycle management and organization-level visibility at cloud scale.

Product Description

While the number of IoT/OT devices in the industry is exponentially increasing, most of these client devices today are “headless” with limited or no support for 802.1X authentication or even browser support for captive portal onboarding. Enterprises need an easy way to onboard, segment, and manage the life cycle of IoT device credentials at scale. The same is true for BYOD devices that traditionally were associated with complex 802.1X onboarding solutions or cumbersome and less secure captive portal-based solutions.

The MPSK mechanism solves these challenges with the onboarding of IoT and BYOD devices. IoT Assurance goes several steps further to make this service truly innovative and scalable while maintaining simplicity in operations.

Juniper Mist IoT Assurance is a “MAC-less” and “NAC-less” onboarding service that can leverage MPSK as a device type and user/endpoint identity. With the ever-increasing trend in client MAC randomization, this onboarding technique proves invaluable for networks of the next decade.

With PSK auto-expiration and PSK rotation, IoT Assurance allows IT to comply with password rotation security policies. PSK is used as a new type of identity to perform dynamic traffic transport based on the PSK role or assign traffic policies via the Juniper Mist WxLAN framework.

Being 100% API programmable, Juniper Mist IoT Assurance can be easily integrated into any mobile device management solution to streamline IoT device provisioning or into any user-facing self-provisioning portal.

Key Benefits

Maximize IoT and BYOD Experiences	Minimize IT Operations Costs When Managing MPSK
Simplified onboarding with Multiple-PSK identity	Key life cycle management (auto expiration, batch key rotation)
Dynamic traffic engineering (local or tunnel)	PSK usage visibility across the entire organization
WxLAN-powered policy based on PSK roles	100% programmable with APIs

MAC-Less Client Device Onboarding

In the new era of MAC randomization in all major client operating systems, the Juniper MPSK service becomes a new type of identity storage. It allows seamless client onboarding without relying on registering MAC addresses, providing seamless user and IT experience, while allowing full segmentation and policy control as with traditional 802.1X authentication.

Pre-Shared Keys

SSID	Role	Expiring Keys	Clients Count
config-w2	vipusers	Within 1 Month	catchall-key
midcast	role1	Within 1 Week	deaflyz_gmail.com
watchme		Within 1 Day	SamsungTVs
local-mgsk-test			testrole
localpkstat			watchme-1

Key Name	MAC	Created Time	Modify Time	Passphrase	Expiration	Max Usage	Usage	SRP	VLAN ID	Role	Client Count	Actions
catchall-key		Dec 17, 2020 06:02:46 PM	Sep 6, 2021 09:27:52 AM	*****	Oct 26, 2021 11:46:06 AM	Unlimited	Multiple users	watchme	710	vipusers	1	
deaflyz_gmail.com		Aug 24, 2021 06:43:17 PM	Oct 4, 2021 11:46:09 AM	*****		Unlimited	Multiple users	config-w2				
guests		Sep 2, 2019 06:56:53 PM	Nov 17, 2020 08:20:11 PM	*****		Unlimited	Multiple users	midcast	750			
mysuper-important-devices		Jul 12, 2021 01:23:50 PM	Jul 14, 2021 04:11:10 PM	*****		Unlimited	Multiple users	config-w2	720	vipusers		
SamsungTVs		Aug 5, 2021 05:17:18 PM	Aug 5, 2021 05:17:18 PM	*****		Unlimited	Multiple users	config-w2	1	vipusers		
SamsungTVs		Jul 15, 2021 06:41:11 PM	Oct 4, 2021 11:33:47 AM	*****		Unlimited	Multiple users	config-w2				
slaxa		Sep 2, 2019 06:54:46 PM	Oct 3, 2020 02:22:05 PM	*****		Unlimited	Multiple users	midcast	750			
sony-new		Nov 30, 2020 08:49:13 PM	Nov 30, 2020 08:49:13 PM	*****		Unlimited	Multiple users	midcast	50			
test		Jul 23, 2021 11:41:02 AM	Jul 23, 2021 11:41:02 AM	*****		Unlimited	Multiple users	localpkstat				

Create, Rotate, Auto Expire Pre-Shared Keys at Cloud Scale

Juniper Mist IoT Assurance greatly simplifies Day 2 operations once the system is deployed at scale. Automatic PSK expiration in concert with automatic key rotation provides simple yet effective key migration technique that allows IT to keep PSKs regularly rotated and allows onsite personnel to avoid any disruptions in service during the key migration, no matter the scale of the deployment. Full PSK visibility provides an invaluable tool to verify key migration compliance across the entire organization.

Expiration Date

Duration: Months

Expire in: Months

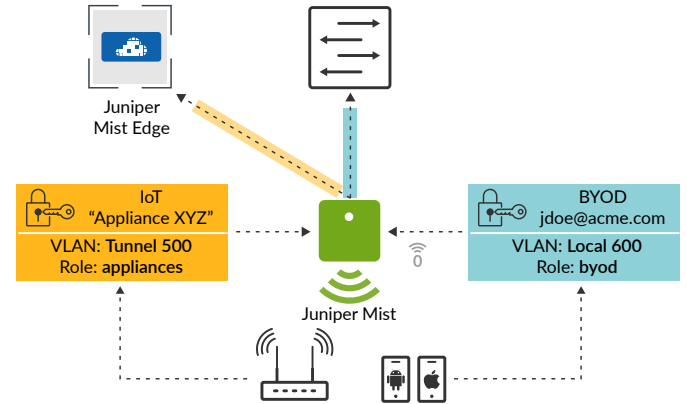
Duplicate Pre-Shared Keys

Original Keys	New Keys
2 Pre-Shared Keys	2 Pre-Shared Keys
Original Key Options	New Key Options
<input type="radio"/> Delete original keys <input checked="" type="radio"/> Modify original keys Original Key Name <input type="text" value=""/> <input type="radio"/> Add Prefix <input checked="" type="radio"/> Add Suffix <input type="text" value="-fidkey"/>	Passphrase <input type="radio"/> Keep Passphrases <input checked="" type="radio"/> Create New passphrases Characters: <input type="text" value="14"/> (Unique randomly generated for each key)
	Additional New Key Options

Dynamic Traffic Engineering

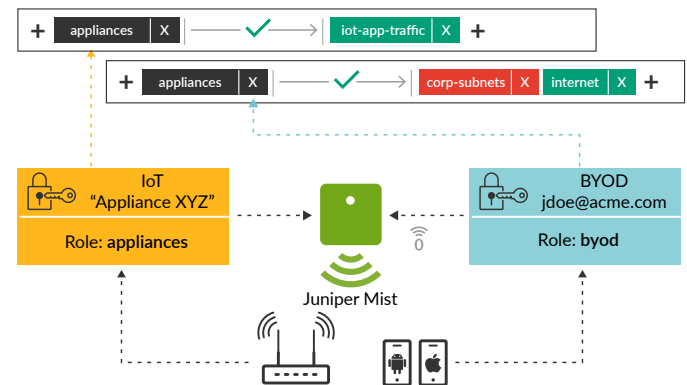
With PSK as a user/endpoint or device type identifier, it has never been easier to determine how client traffic will be transported. Based on MPSK identity, client device traffic could be forwarded locally to an upstream access switch with

specified VLAN tag, or alternatively tunneled to a Juniper Mist Edge in a data center to seamlessly and securely transport IoT device traffic directly to the application server, isolating it from the rest of the network.



Key-Based WxLAN Policy

Juniper IoT Assurance further extends the WxLAN framework and leverages MPSK as the new policy vector. MPSK allows for an easy role tagging that can quickly assign network policy restriction to a client device using certain PSK. IT admins can easily restrict IoT devices to access only resources they require and block access to everything else.



Personal WLAN

Create your own personal wireless network (with personalized pre-shared key), enabling multicast between devices using the same key. This feature can be used to isolate traffic between clients using different pre-shared keys even within the same VLAN. The Juniper Mist AI-driven WLAN solution is the platinum standard for any digital deployment, helping enterprises deliver a dynamic user experience while simplifying management, planning, and troubleshooting for IT. This service includes comprehensive wireless, security, guest access, and network management functions with a single subscription.

Active Device Usage Tracking per PSK

Juniper Mist IoT Assurance provides full visibility into active devices for each PSK at the organization level, in addition to information about device operating systems, locations, and user roles. This enables IT admins to easily track which client devices are currently active on a given PSK or display top PSKs by current active client count.

The screenshot shows the 'Active Clients' section of the Juniper Mist IoT Assurance interface. It displays a table of active devices for the 'catchall-key' PSK. The table includes columns for User, MAC, and Manufacturer. There are 6 active clients listed.

User	MAC	Manufacturer
SIEMENS-KG49NAI40-68A40E33156E	68:a4:0e:33:15:6e	BSH Hausgeräte GmbH
M...s-iPhone	fe:ad:9a:e6:aa:bd	Apple
M...aspleWatch	0e:d2:bb:fa:0c:f3	Unknown
LGwebOSTV	40:2f:86:29:d1:04	LG Innotek
HP20124B	00:68:eb:20:12:4b	HP Inc.
DESKTOP-885H7BF	20:0d:b0:30:2c:72	Shenzhen Four Seas Glob

Automation for Key Provisioning and Rotation

The Juniper Mist platform is 100% programmable, providing open REST APIs, which allow external tools such as mobile device management platforms to leverage Juniper Mist cloud APIs to automate pre-shared key provisioning and rotation for large-scale, managed IoT asset fleets.

Self-Provisioning Portals (*Future)

Juniper IoT Assurance will include built-in tools that will allow customers to create custom self-provisioning PSK portals to automate PSK generation based on user identity. This will support various BYOD workflows leveraging Juniper Mist native Security Assertion Markup Language (SAML) connectors for single sign-on experience. It will also enable easy-to-use automatic client device provisioning via mobile QR code or automatic Wi-Fi connection URL without a need to install any software on the client device.

The screenshot shows the 'Create Workflow' configuration interface for a self-provisioning portal. It includes tabs for Configuration, Authorization, Layout, and Labels. The 'Authorization' tab is active, showing options for SSO (Single Sign-On) and Email. A QR code is displayed on the right side of the interface, along with a success message: 'Success, Passphrase has been emailed to jbatch@juniper.net'. The QR code is labeled 'Front Office ajf6-29h5-295d' and is valid for 30 days.

About Juniper Networks

At Juniper Networks, we are dedicated to dramatically simplifying network operations and driving superior experiences for end users. Our solutions deliver industry-leading insight, automation, security and AI to drive real business results. We believe that powering connections will bring us closer together while empowering us all to solve the world's greatest challenges of well-being, sustainability and equality.

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