

# JUNIPER MIST IOT ASSURANCE

## 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) lifecycle 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 lifecycle 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.

PSK Portal creation enables BYOD on-boarding workflows by automating PSK generation based on user identity, leveraging SAML for an SSO experience. It enables seamless client device onboarding via mobile QR code or by typing a personalized passphrase without installing any client software.

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 lifecycle 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
On-board BYOD users with an SSO experience	Create self-provisioning PSK portals, easing client device provisioning

## MAC-less client device onboarding

In the new era of MAC randomization in all major client operating systems, the HPE Juniper Networking 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.

The screenshot displays the 'Pre-Shared Keys' management interface. At the top, there are buttons for 'Reveal Passphrases', 'Import', 'Export', and 'Add Key'. Below this is a summary table with columns for SSID, Role, Expiring Keys, and Clients Count.

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

Below the summary table is a search filter and a pagination indicator showing '1-18 of 18'. The main part of the interface is a detailed table of keys with the following columns: Key Name, MAC, Created Time, Modify Time, Passphrase, Expiration, Max Usage, Usage, SSID, VLAN ID, Role, Client Count, and Actions.

Key Name	MAC	Created Time	Modify Time	Passphrase	Expiration	Max Usage	Usage	SSID	VLAN ID	Role	Client Count	Actions
catchall-key		Dec 17, 2020 06:02:46 PM	Sep 6, 2021 09:27:52 AM	*****		Unlimited	Multiple users	watchme	710	vipusers	1	[trash]
deaflyz_gmail.com		Aug 24, 2021 06:43:17 PM	Oct 4, 2021 11:46:09 AM	*****	Oct 29, 2021 11:46:06 AM	Unlimited	Multiple users	config-w2			--	[trash]
guests		Sep 2, 2019 06:56:53 PM	Nov 17, 2020 08:20:11 PM	*****		Unlimited	Multiple users	misticast	750		--	[trash]
my-super-important-devices		Jul 12, 2021 01:23:50 PM	Jul 14, 2021 04:11:10 PM	*****		Unlimited	Multiple users	config-w2	720	vipusers	--	[trash]
SamsungPhones		Aug 5, 2021 05:17:18 PM	Aug 5, 2021 05:17:18 PM	*****		Unlimited	Multiple users	config-w2	1	vipusers	--	[trash]
SamsungTVs		Jul 15, 2021 06:41:11 PM	Oct 4, 2021 11:33:47 AM	*****		Unlimited	Multiple users	config-w2	1	vipusers	--	[trash]
slava		Sep 2, 2019 06:54:46 PM	Oct 2, 2020 02:22:05 PM	*****		Unlimited	Multiple users	misticast	750		--	[trash]
sony-new		Nov 30, 2020 09:49:13 PM	Nov 30, 2020 09:49:13 PM	*****		Unlimited	Multiple users	misticast	50		--	[trash]
test1		Jul 23, 2021 11:41:02 AM	Jul 23, 2021 11:41:02 AM	*****		Unlimited	Multiple users	localpskstat			--	[trash]

## 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 on-site 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 ▼

Expire in:  ▼ Months

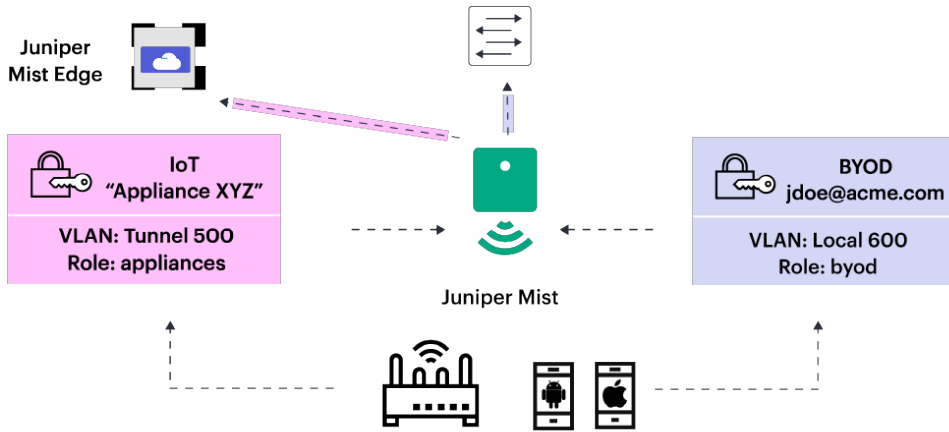
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**Duplicate Pre-Shared Keys** ✕

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

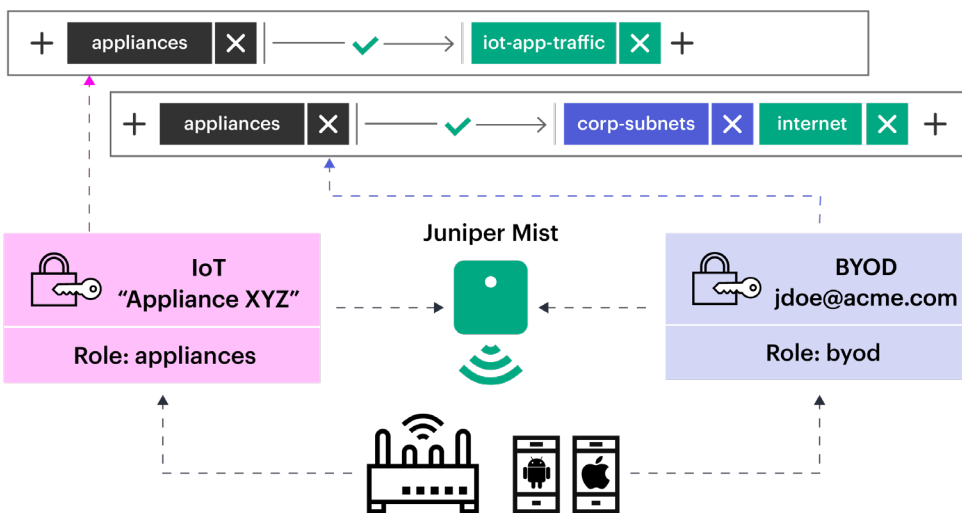
## Dynamic traffic engineering

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 Mist 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 displays the Juniper Mist IoT Assurance interface for a specific Pre-Shared Key (PSK). The top section shows the PSK configuration: 'Key Name' is 'catchall-key' and 'SSID' is 'watchme'. To the right, a 'Clients Count' table lists various device categories and their counts:

Category	Count
catchall-key	10
guests	0
my-super-important-devices	0
SamsungPhones	0
SamsungTVs	0

Below this, there are tabs for 'Active Clients' and 'Registered Clients'. The 'Active Clients' tab is selected, showing a total of 6 active clients. A table lists the active devices with columns for 'User', 'MAC', and 'Manufacturer':

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

Juniper Mist IoT Assurance includes built-in tools that allow customers to create custom self-provisioning PSK portals to automate PSK generation based on user identity. This supports various BYOD workflows leveraging Juniper Mist native Security Assertion Markup Language (SAML) connectors for single sign-on (SSO) experience. It also enables 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.

Add PSK Portal ✕

Portal Settings | **Portal Authentication** | PSK Parameters

**SSO Issuer is required**  
Provide your Identity Provider information to authenticate end-users.

**Issuer**

**Name ID Format**  
 Email  Unspecified

**Signing Algorithm**  
 SHA256

**Certificate**


**SSO URL**

**Portal SSO URL**

Portal SSO URL will be generated after saving the PSK portal.

Create Cancel





SSID: watchme  
Passphrase: JA89ETDIQoYO

Scan QR code with your mobile device camera to automatically connect to WiFi, or connect to the above SSID using your personal passphrase.

Valid for 182 days

Done

Email Passphrase  
✦ Powered by Mist

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