

Product Overview

Juniper Networks Junos Space is an open, secure, and scalable software platform for building and deploying simple, smart applications to manage and analyze network element data, and for optimizing network infrastructure and operations management through dynamic policy. Junos Space allows customers to maximize network value and scale solutions while reducing complexity and opening the network to new business opportunities. Junos Space includes embedded element management, standards-based Device Management Interface (DMI) for zero day device support, a hot-pluggable, multi-tenant application environment with simple Web 2.0 user interface, and a rapid application development framework.

Product Description

The network is a critical business asset. Explosive demand for smart devices, social media applications, and mobility-based services with expectations of always-on connectivity and service has placed unprecedented pressure on network operators who must provide a compelling experience to increasingly demanding users, while optimizing resources and controlling capital and operating expenses.

Juniper Networks® Junos® Space is a next-generation network platform that addresses these challenges, while making it simple to both secure and scale your network. Junos Space is an open network application platform that uses multilayered network abstractions, operator-centric automation schemes, embedded element management functionality, and the simplicity of a point-and-click user interface to help network operators in enterprise and service provider organizations scale their operations, reduce operational complexity, and enable new applications and services to be brought to market quickly.

The Junos Space platform is architected from the ground up and is based on a service-oriented architecture (SOA). It uses industry-standard technologies to provide an enhanced user experience, massive application transparent scale, high availability, and feature velocity. The Junos Space platform provides a single abstracted network model across Juniper's networking infrastructure, and it extends this to third parties through standards-based Representational State Transfer (RESTful) APIs. The use of a standards-based Device Management Interface (DMI), an XML schema-driven device access API, zero day support for new devices, and a plug-and-play application environment allows in-service device and software upgrades. Users can access the Junos Space platform functionality using a simple, Web 2.0 graphical user interface (GUI), which uses persona-based workflows and progressive disclosure to enable operator-centric and scope-specific visibility and control.

Provided with the platform through both the Standard and Advanced Edition packaging is a set of robust, out-of-the-box, and easy-to-use applications that provide comprehensive business solutions for security, mobility, the data center, and cloud solutions. In addition, Junos Space offers a developer SDK for companies that want to build customized applications specific to their needs. For companies that want to extract value from their network and deliver on solutions that truly work for their business, Junos Space is the platform of choice.



Figure 1: Junos Space user administration

Junos Space Environment

Scalable and Resilient Runtime Environment

Junos Space is implemented as a scalable fabric of physical or virtual appliances that work collaboratively to help optimize network resiliency, availability, and resource utilization. You can expand or contract the fabric by simply adding or deleting nodes; the system will automatically expand. Each node is fully utilized and the nodes work together to provide automated resource management and a base for higher level applications.

The Space platform is designed for carrier-grade reliability and availability. The Space fabric provides 1:1 data base redundancy and transparent switchover of UI sessions in case of node failure. And Junos Space is built to be massively scalable. Multiple appliances can be clustered together to form a single management fabric.

The Junos Space runtime platform is multi-tenant and enables hot-pluggable application deployment and upgrades. Juniper or third-party applications can be added by downloading them onto the platform, with the system automatically deploying the applications throughout the fabric. One of the unique features of the platform is its DMI, a schema-driven, programmatic interface to allow for easy management of network devices. DMI makes it possible to import the published schema version and map out all configuration and operational commands for a given device, enabling zero day support and future proofing without having to upgrade or patch the platform.

Enhanced User Experience

Junos Space provides a simple to use, Web 2.0 GUI that can be accessed through standard Web browsers. The GUI is designed to simplify the way you interact with the system. It is based on a task-oriented paradigm and uses persona-based workflows to help you do your administrative tasks quickly and efficiently.

Embedded Network Infrastructure Automation

The Junos Space platform provides centralized, unified, out-of-the-box management for Juniper's networking infrastructure. It also provides full element management functionality for total management of Juniper's routing, switching, and security devices. Network element management functions include:

- **Device discovery:** Provides a wizard-based interface for near real-time device discovery to enable operators to quickly bring network devices under management.
- **Topology:** Allows operators to have a broad, topological view of the network including endpoint devices, link information, bottlenecks and failures, and discovered relationships between network elements such as devices and interconnections for devices under management.
- **Inventory management:** Enables visualization storage and management of hardware inventory, including chassis-related information such as serial numbers, software version, location, and physical subcomponent information such as slots, cards, and ports for all managed devices. Included is automated synchronization between hardware inventory, interface information, and configuration of the device.
- **Software image management:** Provides centralized, network-wide deployment of software images and patches to enable customers to efficiently manage the deployment of Juniper software. Includes the ability to import software images from local or networked file system, flexibly schedule software deployments, deploy software image to one or multiple devices in a single workflow, image verification for accuracy, and use of golden image.
- **Configuration templates:** Enables creation of cookie-cutter, model-based configuration templates to help optimize and scale device configurations. Includes schema-driven GUI for fully customizable configurations, and an audit trail to track configuration changes.
- **Configuration file management:** Enables simplified configuration management that includes import, edit compare, and backup/restore for individual devices or device groups. Provides instant visibility into network configuration and performance correlation, automated configuration deployment scheduling, validation to minimize syntax errors, and entry forms for easy creation of template definitions and bulk modification of configurations.

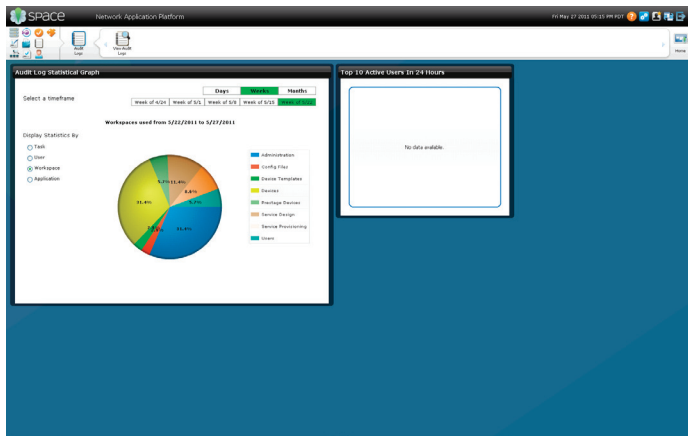


Figure 2: Config File Compare - Configuration File Management includes backup, restore, view, edit, and export of config files, as well as compare/diff

- **Configuration editor:** Using a schema-driven GUI, operators can view and edit all attributes of a device's configuration, including being able to work with portions of the configuration.

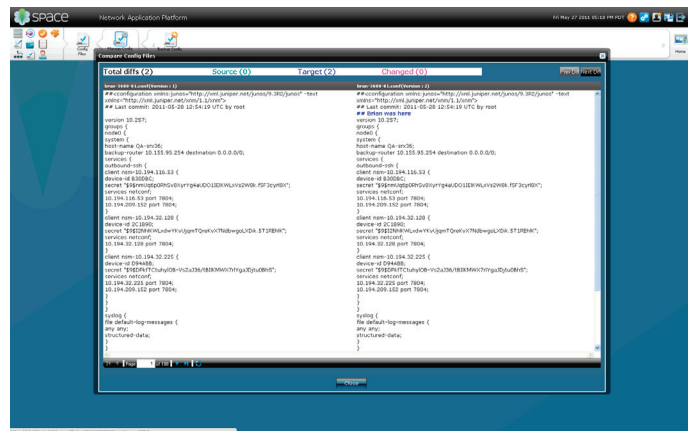


Figure 3: Audit Log - User modifiable graph showing changes to the system over a specified period of time.

- **Junoscript management:** Provides centralized, total management of Junoscripts, including import/export, view/edit, version control, deploy/delete, verify execution, and more to allow operators to leverage configuration and diagnostic automation tools provided by the Juniper Networks Junos operating system.

These platform functions enable users to control any part of their Juniper network when used in conjunction with multiple add-on applications.

Customizable Application Environment

Junos Space provides a full featured development environment for fast development and monetization of network-aware applications. The Junos Space development platform provides a complete rapid application development framework that includes a common infrastructure, a software development kit (SDK) with prebuilt core services and widgets to allow easy user interface prototyping, and standards-based APIs for third-party application integration. Using the Juniper Networks Junos Space SDK, users have the option of developing different classes of applications such as mashups, customized business process workflows, or native applications.

Features and Benefits

Junos Space Benefits

With the Junos Space platform and applications, customers benefit from:

- Network-wide visibility and control
- Quick scaling of operations and services
- Rapid deployment of switching, routing, and security infrastructure
- Total management of Juniper devices
- Network intelligence for extending core platform capabilities
- Fast problem identification and resolution
- SDK and APIs for customization and integration
- Reduced OpEx

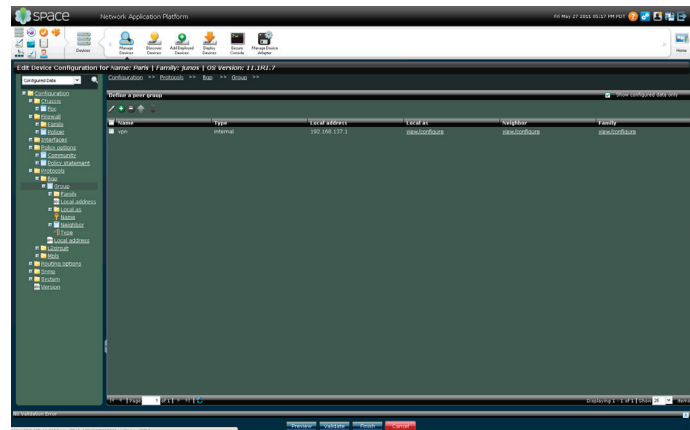


Figure 4: Config Editor - Configuration management is a schema-driven way of configuring any aspect of a device where users can change any part of a config or view (and edit) only the portions already configured on the device.

Features and Benefits

FEATURES	FEATURE DESCRIPTION	BENEFITS
Web 2.0 GUI	<ul style="list-style-type: none"> Task-oriented GUI to enable users to complete tasks in congruent navigation steps and screen flows without context switches Persona-oriented system views and workflows Workflow automations for common tasks Progressive disclosure for contextual view of the network 	<ul style="list-style-type: none"> Identity-based navigational flows and a consistent user experience that increase user productivity, eliminate error prone manual operations, and speed up operation cycle times Lower OpEx due to reduced requirement for highly skilled personnel; reduced training and support costs due to consistent interface and workflow automation
Device Management Interface (DMI)	<ul style="list-style-type: none"> XML schema and metadata files describing how to manage each release of the device's software 	<ul style="list-style-type: none"> Zero day device support Future proofing of network investments
Hot-pluggable/multi-tenant applications	<ul style="list-style-type: none"> Hosted applications that can be hot-plugged into Junos Space platform via global dashboard Applications that leverage global platform capabilities but maintain their unique identities 	<ul style="list-style-type: none"> Rapid deployment of applications and devices In-service application and device updates to increase uptime and business continuity
Application fabric	<ul style="list-style-type: none"> Distributed fabric of IP-connected physical or virtual appliances of pre-assembled, near identical full application stacks, including the complete Junos Space software to enable each appliance to provide full management functionality End users who are able to access management applications through a single, public virtual IP Fabric that is deployed in active/active cluster configuration 	<ul style="list-style-type: none"> Instant scale by simply adding or deleting nodes on the fabric Increased application availability and resilience due to no single point of failure Resource optimization due to each node being fully utilized and load-balanced with others in the fabric

Network operations

Network discovery and inventory management	<ul style="list-style-type: none"> Network and device discovery Near real-time network inventory Dedicated socket connection to each device Inventory management for automated collection of inventory data from Juniper devices. Inventory views of physical and logical inventory of supported devices, allowing users to generate reports and track locations, availability, and deployment of hardware and software Automated synchronization between hardware inventory, interface information, and device configuration of the device Multi-target specification (IP address, IP address range, IP subnet, host name) 	<ul style="list-style-type: none"> Supports Fault, Configuration, Accounting, Performance, Security (FCAPS) network management framework, and provides total management of network elements Includes autodiscovery for improved asset management and network planning Enables secure notifications and action for each configuration change Detailed view of all hardware inventory (power supplies, chassis cards, fans, part numbers, etc.) for all managed devices to enable intelligent cataloging for effective system upgrades and modifications
Topology	<ul style="list-style-type: none"> Automated discovery of network topology (devices and interconnections) Tools for visualizing the discovered topology Tabular view for device-specific details Topology view for broad network visibility Semantic zooming for fine-grained device view 	<ul style="list-style-type: none"> Flexible network visualization options for simplifying network operations
Software image management	<ul style="list-style-type: none"> Centralized device software installation for all managed devices Enables device images to be uploaded from local file system, and deployed onto a device or onto multiple devices of the same device family in a single workflow Image verification for accuracy 	<ul style="list-style-type: none"> Provides the ability to do remote software upgrades and in-service software upgrades Enables automated upgrade planning, scheduling, downloading, and monitoring of device images Reduces errors with the use of a recommended image

Features and Benefits (continued)

FEATURES	FEATURE DESCRIPTION	BENEFITS
Configuration templates	<ul style="list-style-type: none"> • Device configuration templates that provide the ability to design and push any configuration to a device or group of devices • Schema-driven GUI for template creation to enable granular control • Entry forms to create template definitions • Audit log that captures all template deployment operations 	<ul style="list-style-type: none"> • Allows administrators to design, validate, and push configurations to device or device group • Enables deployment of common configuration across multiple devices • Allows operators to manipulate all knobs on a given device
Configuration editor	<ul style="list-style-type: none"> • Configuration editor that provides the ability to view, edit, and delete all aspects of a device's configuration 	<ul style="list-style-type: none"> • Allows operators to quickly view and modify any portion of a device's configuration
Configuration file management	<ul style="list-style-type: none"> • Ability to view a given device's configuration and edit, add, or delete portions of that configuration • Schema-driven • Up-to-date view of device's configuration • Ability to view, edit, version control, compare, back up, and restore network configuration files 	<ul style="list-style-type: none"> • Simplified configuration management to optimize network performance and health • Instant visibility into network configuration and performance correlation • Entry forms to create template definition and bulk modify configurations • Administrators able to compare different configuration versions either for the same or different devices
Junoscript management	<ul style="list-style-type: none"> • Configuration and management of Junos OS automation scripts, including import/export, view/edit, version control, deploy/delete, and verify script execution 	<ul style="list-style-type: none"> • Centralized management of all Junos OS automation scripts
Full rapid application development framework	<ul style="list-style-type: none"> • Includes a common infrastructure, a tool kit with core services and user interface widgets, and integration APIs 	<ul style="list-style-type: none"> • Comprehensive development environment to rapidly create and monetize applications • Easy integration into operations support systems (OSS) and data center ecosystems • Ability to create mashups for market-specific solutions



Specifications

Mainboard

Intel 3210/LGA775 motherboard

- Chipset—Intel Bigby-P chipset
 - Intel 3210 chipset
 - Intel ICH9R
- Headers for VGA and PS/2 mouse and keyboard support on motherboard (to be used for development, test, and debugging—not intended for shipment to customer)

Processor

Single LGA 775 CPU, Intel Core2 Quad Q9400

2.66 GHz 6 MB L2 Cache 95 W Quad-Core Processor

Memory

8 GB memory in a total of 4 DIMM slots (4x2 GB DIMM modules)

- ECC DDR2 unbuffered

Network ports

- 4x RJ45 10/100/1000 via Intel 82573EB Gigabit Ethernet controller
- Optional single I/O card slot available for expansion

I/O ports

- 1x RJ45 serial port for serial console
- USB interface

Power supply

250 W auto ranging power supply for all countries (90 to 264 V)

- High efficiency—80 PLUS certified
- Cold swappable (single supply)
- Dual redundant hot-swap (dual supply option)

RAID controller

- Adaptec 5405 RAID controller2 or equivalent

Hard drive

- Hot-swap RAID 5 array
- 3 x 1 TB Seagate ES.2 7200 SAS HDD

In I/O card style trays, externally accessible, field replaceable

- Front panel LED to indicate drive activity
- Front panel LED to indicate drive failure/array rebuild

Junos Space Virtual Appliance

Junos Space Virtual Appliance includes the complete Junos Space software package as well as the operating system. It requires users to create a virtual machine in order to deploy the appliance. The recommended specifications for the virtual machine are identical to the specifications of the physical appliance.

Juniper Networks Services and Support

Juniper Networks is the leader in performance-enabling services that are designed to accelerate, extend, and optimize your high-performance network. Our services allow you to maximize operational efficiency while reducing costs and minimizing risk, achieving a faster time to value for your network. Juniper Networks ensures operational excellence by optimizing the network to maintain required levels of performance, reliability, and availability. For more details, please visit www.juniper.net/us/en/products-services.

Ordering Information

The Junos Space appliance is sold as part of the Junos Space Standard Edition or the Advanced Edition. Junos Space Standard Edition includes element management functions, image management, script management, configuration management, Ethernet Design, Security Design (firewall/VPN/NAT), Service Now, and support and software updates.

DESCRIPTION	SUBSCRIPTION LICENSING		PERPETUAL LICENSING
	FIRST TIME PURCHASE SKU	RENEWAL SKU	PERPETUAL SKU
Junos Space Standard Edition for 25 devices	JS-STD-25-1	JS-STD-25-1-R	JS-STD-25
Junos Space Standard Edition for 50 devices	JS-STD-50-1	JS-STD-50-1-R	JS-STD-50
Junos Space Standard Edition for 100 devices	JS-STD-100-1	JS-STD-100-1-R	JS-STD-100
Junos Space Standard Edition for 500 devices	JS-STD-500-1	JS-STD-500-1-R	JS-STD-500
Junos Space Standard Edition for unlimited devices	JS-STD-U-1	JS-STD-U-1-R	JS-STD-U

Junos Space Advanced Edition includes Network Activate, QoS Design, and Transport Activate as well as element management functions, image management, script management, configuration management, Ethernet Design, Security Design (firewall/VPN/NAT), Service Now, and support and software updates.

DESCRIPTION	SUBSCRIPTION LICENSING		PERPETUAL LICENSING
	FIRST TIME PURCHASE SKU	RENEWAL SKU	PERPETUAL SKU
Junos Space Advanced Edition for 25 devices	JS-ADV-25-1	JS-ADV-25-1-R	JS-ADV-25
Junos Space Advanced Edition for 50 devices	JS-ADV-50-1	JS-ADV-50-1-R	JS-ADV-50
Junos Space Advanced Edition for 100 devices	JS-ADV-100-1	JS-ADV-100-1-R	JS-ADV-100
Junos Space Advanced Edition for 500 devices	JS-ADV-500-1	JS-ADV-500-1-R	JS-ADV-500
Junos Space Advanced Edition for unlimited devices	JS-ADV-U-1	JS-ADV-U-1-R	JS-ADV-U

For more information about Juniper Networks Junos Space applications, please visit www.juniper.net/us/en/products-services/software/junos-platform/junos-space/applications.

About Juniper Networks

Juniper Networks is in the business of network innovation. From devices to data centers, from consumers to cloud providers, Juniper Networks delivers the software, silicon and systems that transform the experience and economics of networking. The company serves customers and partners worldwide. Additional information can be found at www.juniper.net.

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