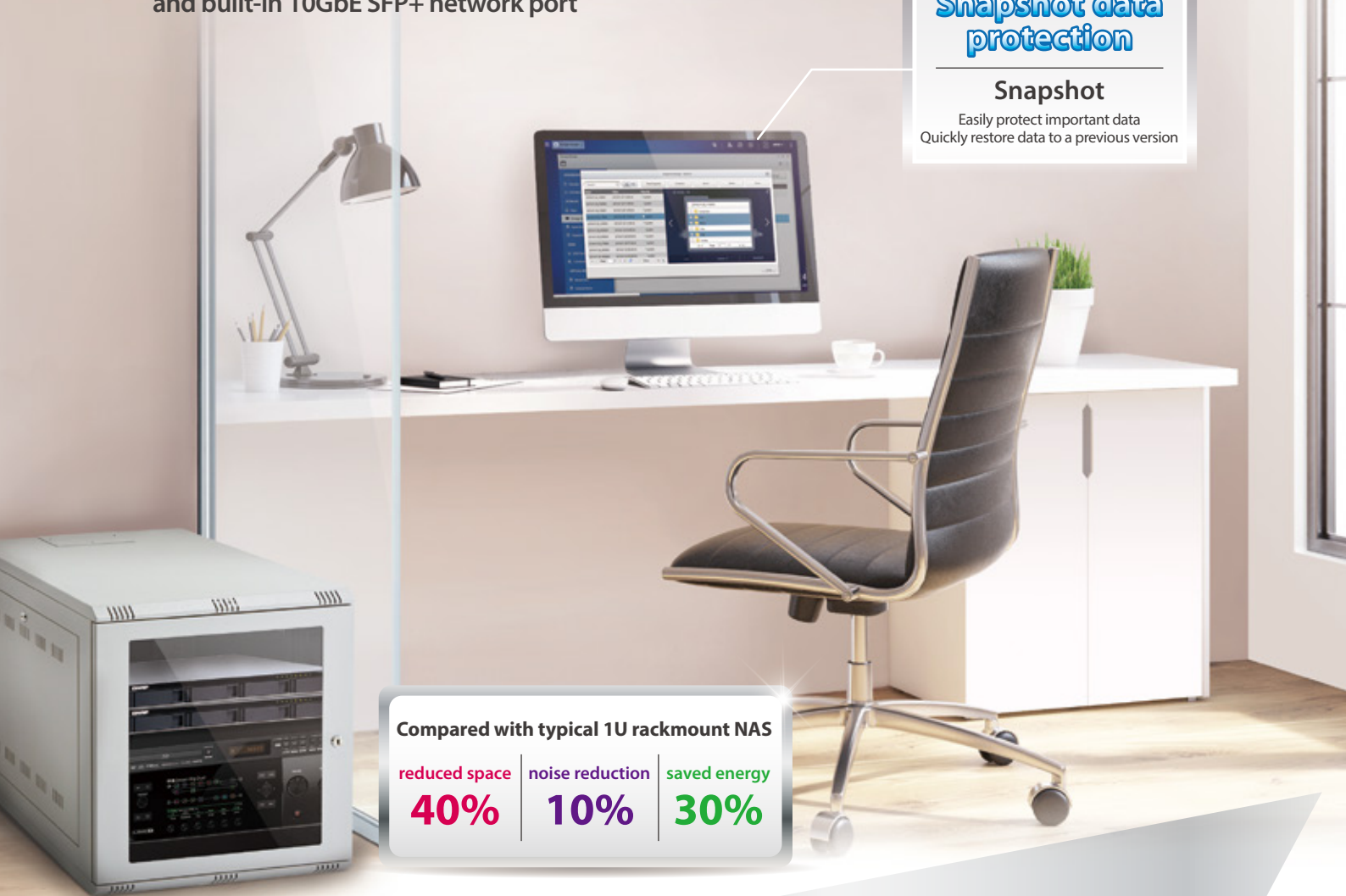# QNAP

1U 4-bay 12-inch Rackmount NAS

TS-431XeU

With Annapurna Labs Alpine AL-314 quad-core 1.7 GHz processor and built-in 10GbE SFP+ network port

Comes with QTS 4.3.4
Snapshot data protection

Snapshot
Easily protect important data
Quickly restore data to a previous version

Compared with typical 1U rackmount NAS

reduced space	noise reduction	saved energy
40%	**10%**	**30%**

2GB / 8GB DDR3 memory
Expandable to 8GB

SFP+
10GbE SFP+ network port
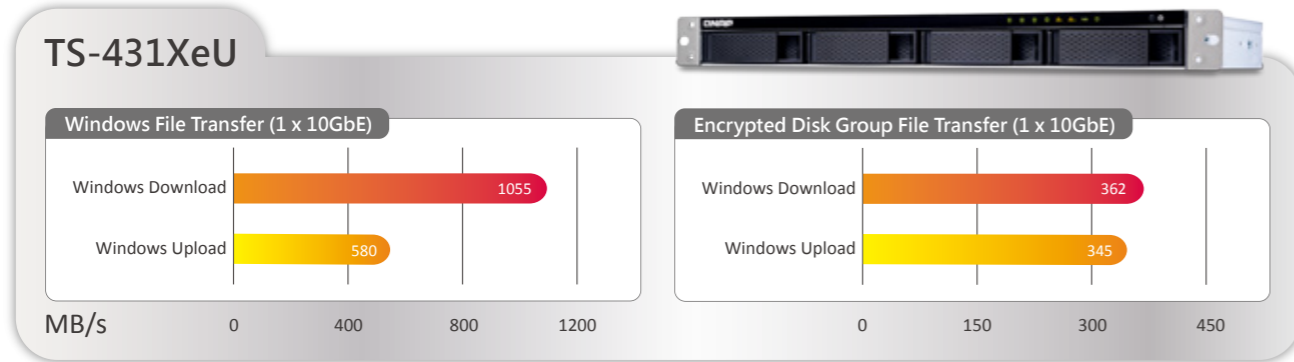580-1055MB/s read/write performance

Host IoT applications with Container Station
Integrated LXC and Docker lightweight virtualization technologies

- ◆ Centralized management, shared data, and Hybrid Backup Sync enterprise-grade data backup
- ◆ 24/7 surveillance solution that includes 2 free camera channels (supports up to 30 channels)
- ◆ Hardware-accelerated Encryption Engine performance of over 362MB/s (1x 10GbE)
- ◆ Quickly find files with Qsirch - the full-text NAS search engine
- ◆ Supports up to 24 hard disks by using QNAP expansion enclosures (UX-1200U-RP or UX-800U-RP)

powered by
annapurnalabs
an **amazon** company

Energy-efficient quad-core processor with encryption engine

The TS-431XeU uses a low-power, high-performance ARM® Cortex®-A15 core architecture Alpine AL-314 quad-core 1.7 GHz processor developed by Annapurna Labs from Amazon®. It is equipped with a hardware-accelerated encryption engine, 2GB/8GB DDR3 RAM and a built-in 10GbE SFP+ network port. With its hardware-accelerated encryption engine, the TS-431XeU delivers speeds of up to 362 MB/s when using AES-256-bit encryption to provide data security without sacrificing performance.

TS-431XeU

Windows File Transfer (1 x 10GbE)

Windows Download	1055
Windows Upload	580

MB/s — 0, 400, 800, 1200

Encrypted Disk Group File Transfer (1 x 10GbE)

|	
Windows Download	362
Windows Upload	345

0, 150, 300, 450

Tested in QNAP laboratories. Data may vary due to differences in physical environments.
Test environment
NAS:
OS: QTS 4.3
Disk Array: RAID 5; 4x Intel SSD DC S3500 240G

Client PC:
Intel® Core i7™-6700 @ 3.40 GHz CPU; 32GB DDR4 RAM; Mellanox ConnectX-3 dual-port 10GbE SFP+ NIC; Microsoft Windows 10 64bit; 10GB file transfer by Robocopy.

10GbE Readiness

In addition to two Gigabit network ports, the TS-431XeU also has a built-in 10GbE SFP+ port that can empower bandwidth-demanding applications including virtualization, huge backup/recovery tasks, surveillance, and more.

1 x 10GbE SFP+   2 x 1GbE RJ-45
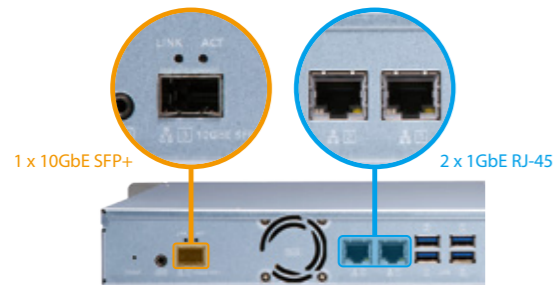
Easily monitor network status with LED lights

In addition to front panel system status LED lights, the TS-431XeU also has separate drive bay and network LED lights, so that system administrators can quickly determine power and network status.
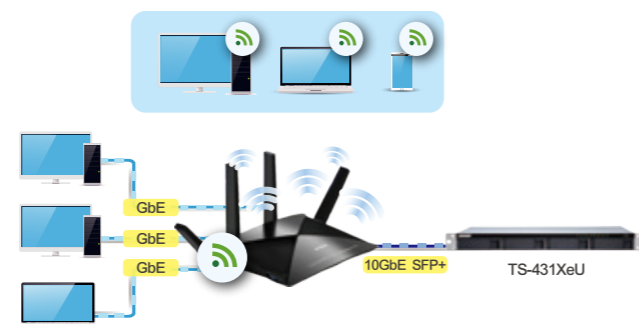
The 10GbE Era

10GbE high-speed networks empower multiple cloud and virtualization applications, and can meet an enterprise's requirements for high-speed file transfer, backup and more. In the past, 10GbE infrastructure was expensive, rare, and lacked applications that would take full advantage of its high bandwidth. With the growing need for more bandwidth and performance, 10GbE infrastructure has become increasingly mainstream and costs have steadily lowered to the point where 10GbE is accessible to small business users. You can use the TS-431XeU's built-in 10GbE SFP+ port in combination with low-cost 10GbE switches to quickly create high-speed environments, or with high-level AP or Routers to set up multiple directly or wirelessly connected application workstations.

PC   NAS   Laptop
10GbE   10GbE   GbE
TS-431XeU
10GbE SFP+
10GbE Switch
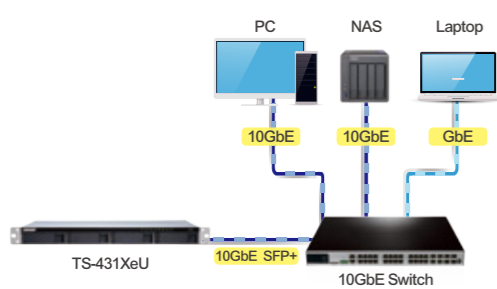
High-speed file sharing via 10GbE switch

GbE
GbE
GbE
10GbE SFP+
TS-431XeU

Wireless AP synchronous support of 10GbE transmission

## Advanced cooling for quiet operation

The TS-431XeU intelligently detects system load and automatically adjusts fan speed and power consumption. When running in general mode, it ensures the best balance between heat dispersion and noise reduction. When running in silent mode, the fan speed can even be reduced to below the preset minimum at low load to save power and run without any noise. The noise measured in a quiet library at room temperature is usually about 30dB, an idle TS-431XeU system can reach a minimum of only 20.3 dB (A) to provide quiet operation

Compact design for convenient and flexible space utilization

The TS-431XeU has a more compact design than typical 4-bay rackmount NAS, with a depth of only 291 mm (11.46 inches). With the optional QNAP RAIL-B02, it can easily fit into most small racks, and save valuable space for cabling and cooling. The reduced physical footprint not only makes deployment more flexible, but also makes the affordable hardware more suitable for fast-growing small and medium enterprises.

291 mm (11.46 inches)

499 mm (19.6 inches)

40% depth reduction
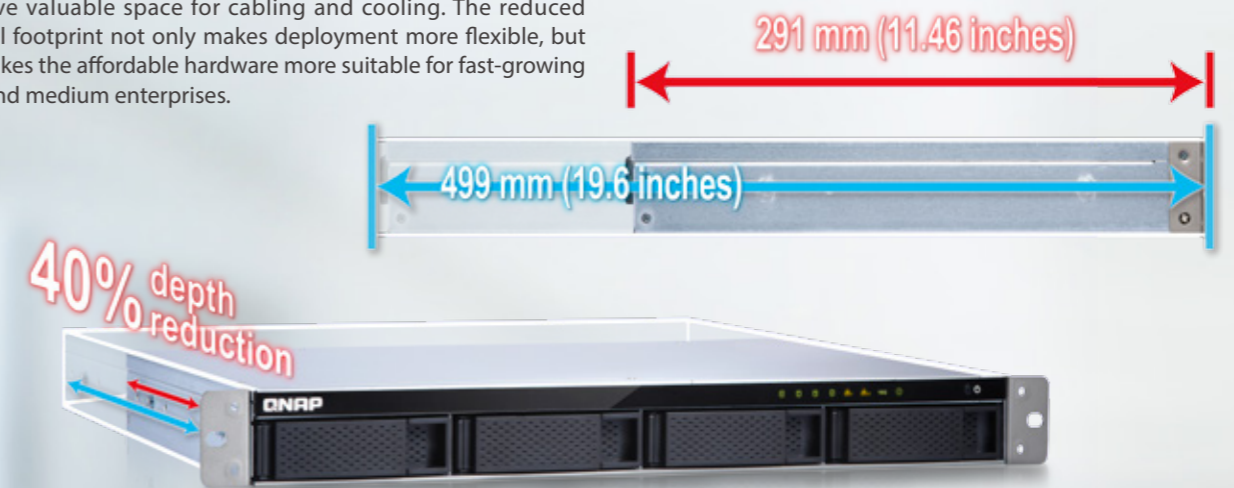
With the optional QNAP RAIL-B02 rail kit, even when installed in a wall-mounted case with a depth of less than 600 mm, there is still adequate space for cabling, cooling, or soundproofing. The TS-431XeU is very suitable for small offices and studios that lack adequate space for servers and other large IT infrastructure. The TS-431XeU can also be used with industrial control cabinets, built-in uninterruptible power supplies, and network switches to set up a simple central control system, or combined with integrated office cabling, be used in large conference centers or audio-visual media centers.
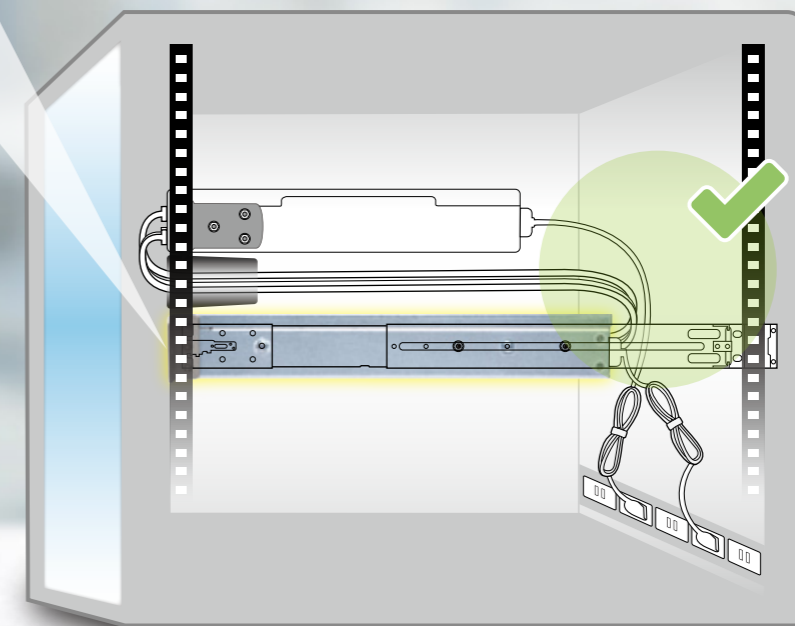
Centralized Storage & Snapshot Management

The Storage and Snapshot Manager in QTS 4.3.4 aims to be the industry's best storage system management tool. With a new storage space setup wizard, storage space monitoring interfaces, and simplified layout for managing various storage settings, users can easily manage disks, storage spaces, iSCSI services, and block-level snapshots.
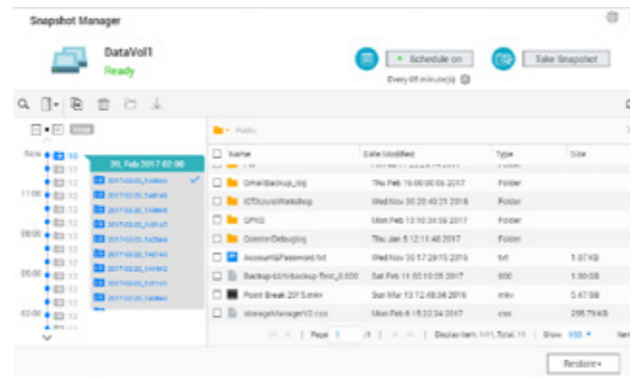
Well-rounded data protection
Local snapshot and remote snapshot backup tasks

QNAP Snapshots keep track of block-level differences caused by file modification at a specific point in time. This not only effectively reduces storage space usage, but also allows users to use Snapshot Revert to restore an entire disk volume or block-level iSCSI LUN in the shortest time possible to meet the enterprise's high requirements for Recovery Time Objective (RTO) and Recovery Point Objective (RPO).

SSD caching

The TS-431XeU supports SSD caching to enhance IOPS performance and accelerate disk access. It is especially suitable for IOPS-demanding applications such as virtualization and databases. By combining SSDs and HDDs, system performance is increased in a cost-efficient manner.

Easily sync files with Qsync Central

Qsync allows for files that have been added to a TS-431XeU to be synchronized with connected devices, including laptops and mobile devices. For those who are frequently on the move, Qsync can help them access the latest files at any time.
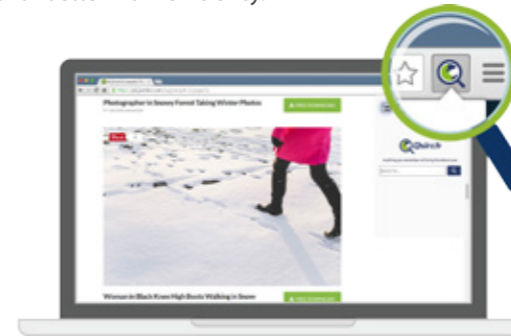
Centralized backup, recovery and synchronization management with Hybrid Backup Sync

Hybrid Backup Sync integrates data backup, recovery and synchronization functions (via RTRR, rsync, FTP, CIFS / SMB protocols) into a single application to help you easily backup or synchronize data from TS-431XeU to another QNAP NAS, remote server, or cloud backup space. Hybrid Backup Sync supports multi-version backup, flexible work scheduling, file compression backup and more.

Instantly find files with Qsirch

Qsirch is a full-text search engine that helps find files quickly and provides thumbnail preview, summary, keyword annotations and more. The Qsirch Helper (for Google Chrome and Mozilla Firefox) is a browser extension/add-on that allows you to search for files on your TS-431XeU when using Google Search. Qsirch is perfectly integrated into QmailAgent to provide a powerful email search engine. You can also use QmailAgent to quickly search through all the .eml files stored on the QNAP NAS for better work efficiency.

QmailAgent

QmailAgent is a NAS-based email client that can centrally manage multiple email accounts. You can manage and access all of your email accounts from a single app. You can also attach files directly from the TS-431XeU to outgoing emails.

Qcontactz

Qcontactz, the private cloud contacts manager, helps you centralize and manage contact information for all your friends, family and work partners. Qcontactz has multiple ways of importing your contacts, including syncing with your Google Account contacts or importing from CSV and vCARD 3.0 files.

Automatic file organization

Organizing an ever-increasing collection of files and data that are distributed across a vast number of folders can be difficult and time consuming. With Qfiling's automatic file organization and preset classification conditions, you can automatically organize and sort files and save lots of time.

## Rapid IoT application deployment with Container Station

QNAP Container Station innovatively integrates two lightweight virtualization technologies: LXC and Docker®. You can run a full Linux® virtual machine on the TS-431XeU and download thousands of applications from the Docker Hub® online marketplace. It supports container import/export, access settings, and provides a graphical design overview page with a flexible interface to help easily manage multiple containers. Container Station also provides the best platform for developers to easily and quickly develop apps, and it also facilitates the deployment of Internet of Things (IoT) applications. Search for "IoT" in Container Station, download the appropriate software container, and use QIoT Containers to quickly design your own IoT system.
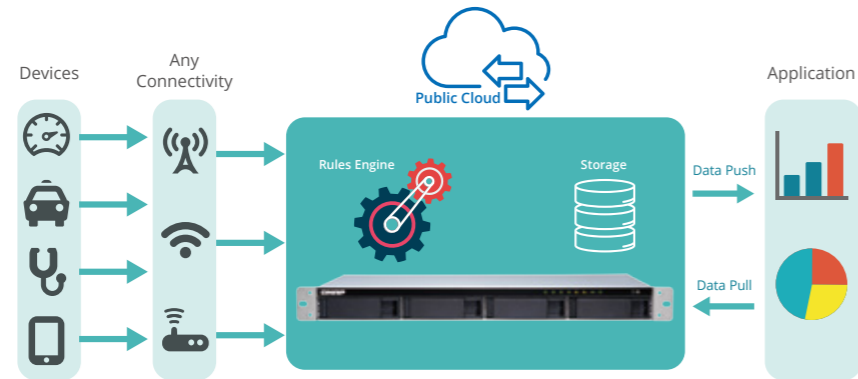
Container apps designed specially for IoT

Container Station provides Ponte, Node-RED, MongoDB, Freeboard and other dedicated IoT software containers to create IoT environments. A typical IoT architecture combines sensors with development boards (such as Raspberry Pi), Ponte (data receiving), Node-RED (data analysis), MongoDB (data storage) and Freeboard (data presentation) on QNAP NAS.

Module	Protocol converter	Message broker	Rules engine	Database	Presentation (Presentation)
Description	QNAP's QBridge can bridge two different protocols in the Field Gateway.	Responsible for receiving messages, parsing, and then sending out the message.	Processes the received message, and gives your devices (Things) the ability to interact with a particular service.	Use a NoSQL database to capture and manage large amounts of data from sensors, devices and gateways.	Usually through a mobile device, a wearable device, and a web/device app. Monitor and control Internet of Things devices.
Software container	QNAP QBridge	Kafka Ponte RabbitMQ	Node-RED Blockly	MongoDB Redis MariaDB	Freeboard Dashing
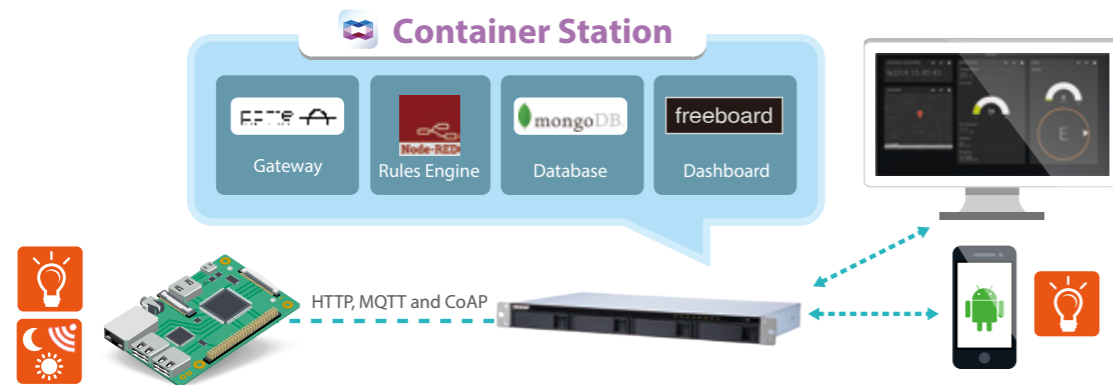
◆ Container Station v1.6 supports various IoT applications including:
  •Kafka •RabbitMQ •MQTT •Freeboard •Node-RED •Redis •MongoDB •Ponte •Dashing •Freeboard

24/7 Security monitoring solution

Surveillance Station is a professional network security monitoring solution with a user-friendly interface that supports over 3,000 IP camera models and features a scalable IP camera channel license. With Surveillance Station you can easily set up a professional security monitoring center for real-time monitoring, video recording and playback. You can use the Vmobile mobile app to monitor your surveillance feeds from anywhere on a mobile device. The Vcam mobile app can also be used to turn your mobile device into a IP camera and instantly save the footage to the TS-431XeU. The TS-431XeU provides 2 free IP camera channel licenses, and you can purchase more as-needed to expand up to 30 channels.

Includes two free channel licenses (supports up to 30 channels)


QUSBCam2 turns a USB webcam into a surveillance camera

QUSBCam2 turns a USB webcam into an IP camera with ONVIF standards and RTSP streaming protocol support. In two steps, you can view and share real-time footage in a web browser. No cumbersome settings are needed, and no extra software or drivers are required. With Surveillance Station, you can not only synchronize the recording of USB webcams and IP cameras, but you can also monitor them from a unified interface.

Remotely manage your surveillance with Vmobile

Connect to your video surveillance system anytime, anywhere, with the Vmobile mobile app.
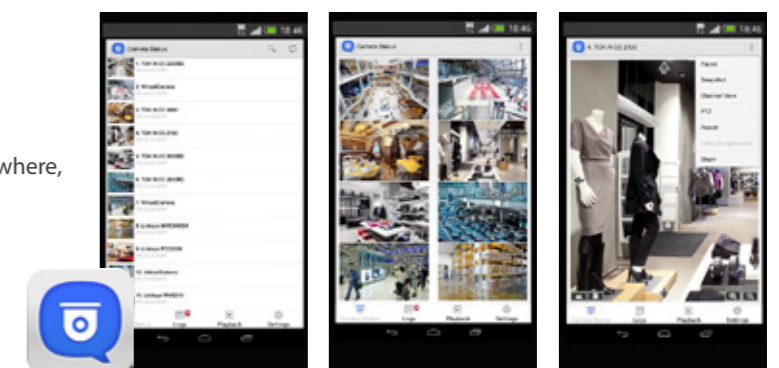
Hardware Specifications

NAS Model	TS-431XeU	
Ordering SKU	TS-431XeU-2G	TS-431XeU-8G
CPU	Annapurna Labs, an Amazon company, Alpine AL-314 Quad-Core 1.7 GHz processor	
Hardware Encryption Engine	✓	
System memory	1 x 2GB SO DIMM DDR3 (expandable up to 1 x 8GB)	1 x 8GB SO DIMM DDR3
Flash Memory	512MB	
Drive Type	4x 3.5-inch or 2.5-inch SATA 6Gb/s drives	
10GbE	1x 10 Gigabit SFP+ LAN port	
1GbE	2 x Gigabit RJ-45 LAN ports	
USB	4x USB 3.0	
Dimensions (Height x Width x Depth)	44 x 439 x 291 mm 1.73 x 17.28 x 11.46 inch	
Power	100 W, 100V-240V (50Hz-60Hz)	
Cooling	3x 4 cm Silent fan (12V DC)	
Noise (dB)	20.3 dB (A)*	
Operating temperature	0 to 40°C (32 to 104°F)	
Relative humidity	5 to 95% (RH), wet bulb temperature: 27°C (80.6°F), non-condensing	
Included items	TS-431XeU, accessories package, power cord, RJ-45 network cable, quick installation guide	
Accessories	RAIL-B02 QNAP assembly kit, UX-800U-RP / UX-1200U-RP storage expansion device, DDR3 4GB / 8GB memory, 10GbE DAC network cable	

◆ Noise level test environment:
Reference standard: ISO 7779. Mount the maximum number of hard disks, measure according to the Bystander Position, and take average data from one meter in front of the machine.

Software Specifications

Supported disk group types	RAID 0/1/5/6/10, RAID 5+ hot spare, single, JBOD
Supported protocols	CIFS/SMB, AFP (v3.3), NFS (v3), FTP, FTPS, SFTP, TFTP, HTTP (S), Telnet, SSH, iSCSI, SNMP, SMTP and SMSC
File sharing	Maximum number of users: 4096; Maximum number of user groups: 512; Maximum shared folders: 512; Maximum simultaneous connections: 700
Other Features	File Station, Photo Station, Music Station, Video Station, Download Station, Qsync, Notes Station, FTP Server, Print Server, VPN Server, VPN Client, Antivirus Protection
Streaming server	DLNA Server, Airplay, Chromecast, iTunes Server

◆ Model specifications are subject to change without notice. Please refer to www.qnap.com for the latest information.