daqscribe
ETHERNET PACKET CAPTURE • RECORD • PLAYBACK

Innovated and produced in the U.S.A

RDR7000-R series
2022

RDR7000-R SERIES ETHERNET RECORDERS

100G	40G	25G	10G
P1 QSFP28	P1 QSFP+	P1 SFP28	P1-P4 QSFP+ to SFP+
P2 QSFP28	P2 QSFP+	P2 SFP28	P5-P8 QSFP+ to SFP+

IEEE 1588 PTP SyncE optional

GPS 1PPS-in optional

capture accelerator   storage controllers   data offload external storage   external video

---

RECORDER HIGHLIGHTS

- ✔ **MIL-STD-810** compliant Ethernet recorders.
- ✔ Sustained **100%** Ethernet capture, record, and playback performance.
- ✔ **Real-time** standard **PCAP** status monitoring of capture ports.
- ✔ System storage options up to **180TB (SSDs)**.
- ✔ **STIG** compliant & **AES256** encryption options.
- ✔ Data offload: **USB 3.0** and **10GbE** or optional **25GbE, 40GbE, 100GbE** ports.

DESIGNED FOR ANY NETWORK PROTOCOL

Daqscribe Ethernet recorders feature high-performance network technologies that grab data from **Layer-2** of the **OSI stack**.

This means precise packet-capture no matter the protocol, including **IPV4** or **IPV6**; **TCP** to **SCTP**; and **IP Unicast** to **IP Multicast**.

Data is reliably stored to enterprise **SSDs** in real-time and as **standard PCAP-formatted files.**

Access and analyze your recorded packet-data with common network analysis tools such as **Wireshark**® and **ntop**®.

100% capture & record from Layer 2

#	Layer	Description	
7	Application	High level APIs. HTTP, FTP, SMTP	SOFTWARE
6	Presentation	Encryption / decryption compression Context for communication between levels	SOFTWARE
5	Session	Controls dialogue between computers Controls terminations and results	SOFTWARE
4	Transport	Enables transfer of data TCP/UDP End-to-end connection	SOFTWARE
3	Network	Connects hosts on different networks IPV4 + IPV6. Routing of data packets.	SOFTWARE
2	Data Link	Provides connections between hosts on the same network. (Ethernet MAC addresses)	HARDWARE
1	Physical	Electrical + physical specifications for devices. Cables and connectors. Data in bits (1's and 0's)	HARDWARE

Rackmount rugged Ethernet recorders	Storage options Subject to availability and substitution			Line rate performance Packet Size 61 to 10,000 bytes	IEEE802.3	Network interfaces Port type	Modules (not included)
RDR7000-R-100G 100Gbps throughput **100GbE-link x 1**		25TB 120TB	50TB 180TB	Rx: 100Gbps Tx: 100Gbps	100GbE	1 x QSFP28	QSFP28 100GBASE CR4/SR4/LR4
RDR7000-R-100G-2 160Gbps throughput **100GbE-link x 1**		25TB 120TB	50TB 180TB	Rx: 160Gbps (1 x 100Gbps or 2 x 80Gbps) Tx: 160Gbps (1 x 100Gbps or 2 x 80Gbps)	100GbE	2 x QSFP28	QSFP28 100GBASE CR4/SR4/LR4
RDR7000-R-40G-2 80Gbps throughput **40GbE-link x 2**	12TB	25TB 120TB	50TB 180TB	Rx: 80Gbps (2 x 40Gbps) Tx: 80Gbps (2 x 40Gbps)	40GbE	2 x QSFP+	QSFP+ 40GBASE CR4/SR4/LR4
RDR7000-R-40G-4 160Gbps throughput **40GbE-link x 4**		25TB 120TB	50TB 180TB	Rx: 160Gbps (4 x 40Gbps) Tx: 160Gbps (4 x 40Gbps)	40GbE	4 x QSFP+	QSFP+ 40GBASE CR4/SR4/LR4
RDR7000-R-25G-4 100Gbps throughput **25GbE-link x 4**		25TB 120TB	50TB 180TB	Rx: 100Gbps (4 x 25Gbps) Tx: 100Gbps (4 x 25Gbps)	25GbE	4 x SFP28	SFP28 25GBASE CR/SR/LR/LR-BiDi, dual-rate 10/25GBASE-SR/LR
RDR7000-R-25G-6 150Gbps throughput **25GbE-link x 6**		38TB 153TB	76TB 180TB	Rx: 150Gbps (6 x 25Gbps) Tx: 150Gbps (6 x 25Gbps)	25GbE	6 x SFP28	SFP28 25GBASE CR/SR/LR/LR-BiDi, dual-rate 10/25GBASE-SR/LR
RDR7000-R-10G-8 80Gbps throughput **10GbE-link x 8**		25TB 120TB	50TB 180TB	Rx: 80Gbps (8 x 10Gbps) Tx: 80Gbps (8 x 10Gbps)	10GbE	8 x SFP+	4 x 10GBASE CR/SR/LR
RDR7000-R-10G-16 160Gbps throughput **10GbE-link x 16**		25TB	50TB 180TB	Rx: 160Gbps (16 x 10Gbps) Tx: 160Gbps (16 x 10Gbps)	10GbE	16 x SFP+	4 x 10GBASE CR/SR/LR breakout from SFP+

SYSTEMS SPECIFICATIONS

Performance	✔ 100% packet capture, record, playback
Hardware Time Stamp	✔ Resolution: 1 ns, Stratum 3 compliant TCXO ✔ Time formats: PCAP-ns/-µs, UNIX 10 ns, 1 ns
Timing/Synchronization	✔ OS time synchronization ✔ SMA interface for PPS ✔ RJ45 100/1000BASE-T interface for IEEE 1588 PTP and SyncE support (optional)
Data Format	✔ PCAP format (capture/record only) ✔ NTCAP – PCAP style binary format (capture/replay) ✔ CLI utilities: simple/quick conversion from NTCAP to standard PCAP format or payload extraction
Optional Capture /Record In-Line Features (FPGA Processing)	✔ Filtering based on e.g. L3/L4 criteria ✔ GTP, IP-in-IP, GRE and NVGRE tunneling support ✔ IP fragment handling ✔ Slicing at fixed or dynamic offset
Storage Options	✔ NVMe NAND flash (enterprise) ✔ Storage in TB with endurance TBW (Total Bytes written in PB) ✔ SSD endurance TBW is based on 128K sequential writing
CPU & Memory	✔ Intel® Xeon® scalable dual socket CPU(s) or AMD EPYC™ CPU(s) ✔ System memory from 96GB up to 2TB
Peripherals	✔ 2 x rear 10GBASE-T, 1 x 1GbE IPMI ✔ 1 x rear COM port ✔ 2 x rear USB3.0 ✔ Rear VGA/DVI/HDMI display
Data Offload Options	✔ 10G: 2 or 4 x SFP+, 10GBASE-T | 40G: 1 or 2 x QSFP+ | 100G: 1 or 2 x QSFP28
Environmental Standards	✔ MIL-STD-810, Operational Temperature, Method 501, Procedure I/II: -15°C to +55°C, capable of -40°C to 71°C with select processors ✔ MIL-STD-810, Storage, Method 501, Procedure I/II: -55°C to +85°C ✔ MIL-STD-810, Humidity, Method 507, Procedure II: 240 hours with humidity kit ✔ MIL-STD-810, Altitude, Method 500: 12,500ft operation, 40,000ft transport ✔ MIL-STD-810, Vibration, Method 514, Procedure I: 4.63 GRMS, 5-2,000Hz, 60 min/axis with solid state drives + vibration kits ✔ MIL-S-901, Grade B ✔ MIL-S-901, Grade A: With solid state drives + shock kits
Electromagnetic Compatibility Standards	Some standards may require an internal kit ✔ AC, FCC compliant ✔ AC, MIL-STD-461, RE102, CE102 compliant ✔ DC, MIL-STD-461, RE102, CE102 compliant ✔ RTCA DO-160 Section 21, Category M
System Cooling	✔ Five high speed, high volume fans CPU temperature controlled
Power Supply	✔ Option 1: 1200W 120/240VAC 1+1 w/PFC ✔ Option 2: 1005W 18-36VDC
Dimensions & Weight	✔ Height: 5.25" (13.34cm) x Width: 17.5" (44.45cm) EIA-310 rack compliant x Depth: 24" (61cm) ✔ Weight: 60-66 lbs. (27-30 kg) [content dependent]
Mounting	✔ Option 1: Mounted on Delrin glides ✔ Option 2: Fixed mount, front and rear ✔ Option 3: Jonathan rails

System specifications subject to change

Our Ethernet packet recording successes start with the careful selection of hardware for integration into our products.
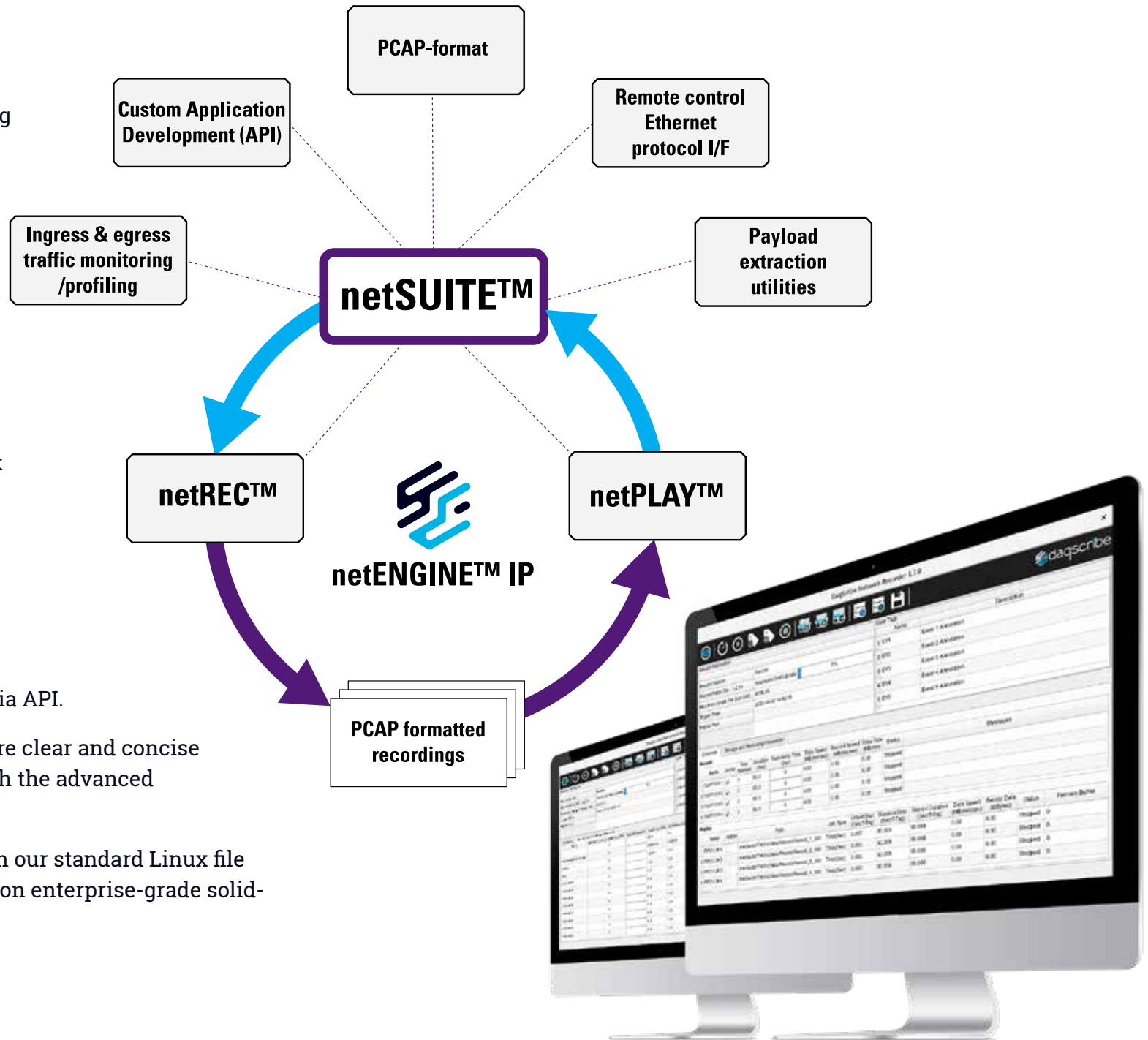
The end-to-end network data paths are then driven by our specially developed **network-engine IP**.

The result is a well-tuned Ethernet record and playback instrument, whose system functions are directed by one of our powerful software modules within **netSUITE™**.

Operation workflows are easy to setup and manage from either your desktop or via API.
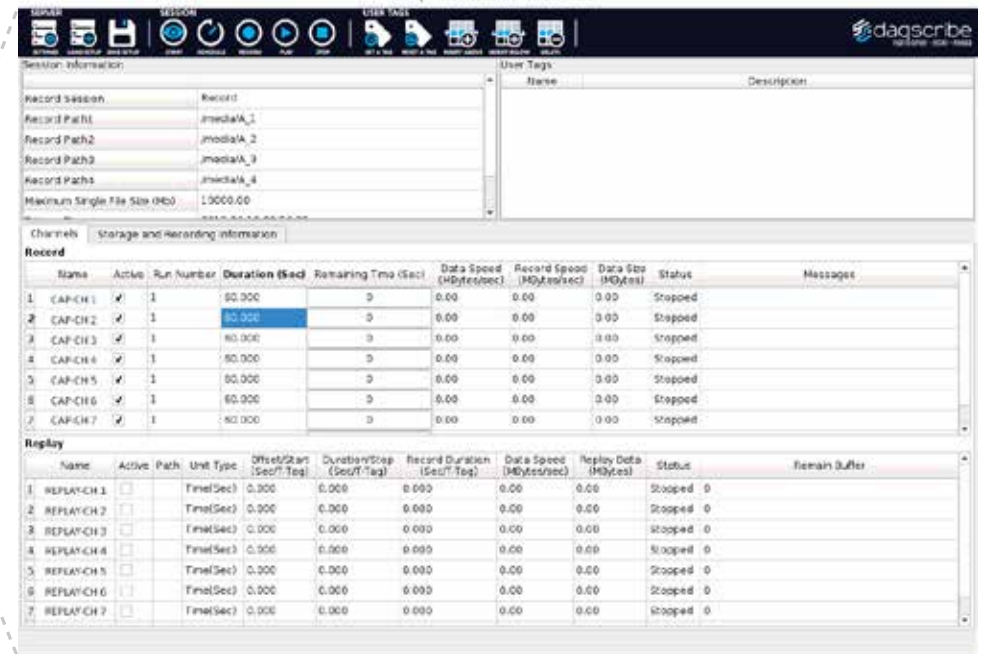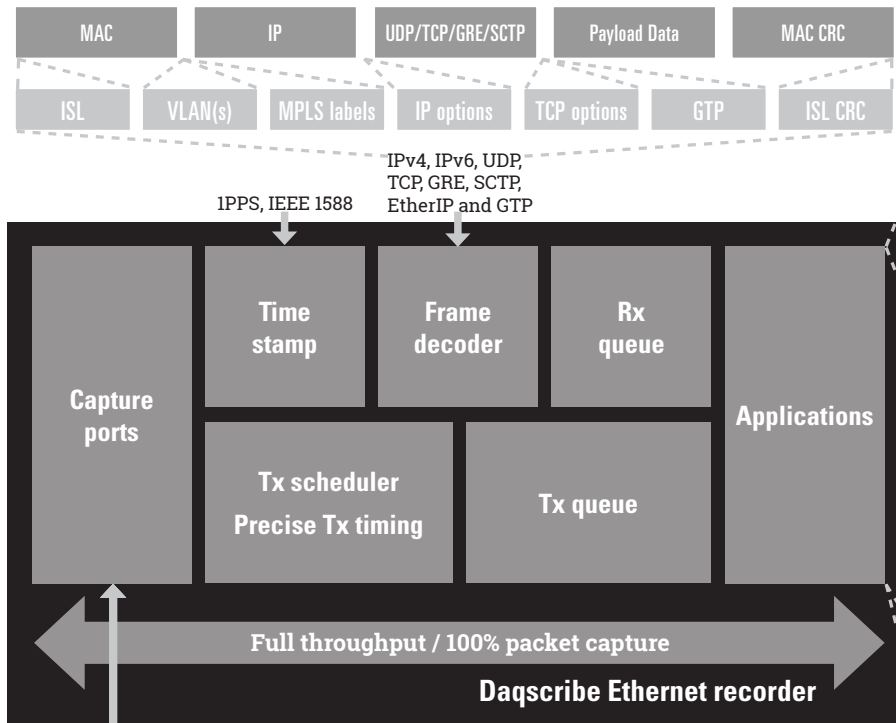
netREC™ and **netPLAY™** feature clear and concise GUIs, for consideration of both the advanced and novice users.

Your data can be found within our standard Linux file system, in **PCAP-format,** and on enterprise-grade solid-state storage.

PCAP-format

Custom Application Development (API)

Remote control Ethernet protocol I/F

Ingress & egress traffic monitoring /profiling

Payload extraction utilities

netSUITE™

netREC™

netPLAY™

netENGINE™ IP

PCAP formatted recordings

SYSTEM BLOCK DIAGRAM

netSUITE™ software featuring netREC™ and netPLAY™

Protocol stack labels

MAC	IP	UDP/TCP/GRE/SCTP	Payload Data	MAC CRC

ISL	VLAN(s)	MPLS labels	IP options	TCP options	GTP	ISL CRC

IPv4, IPv6, UDP, TCP, GRE, SCTP, EtherIP and GTP

1PPS, IEEE 1588

Daqscribe Ethernet recorder block

- Capture ports
- Time stamp
- Frame decoder
- Rx queue
- Applications
- Tx scheduler / Precise Tx timing
- Tx queue

Full throughput / 100% packet capture

Daqscribe Ethernet recorder

Interface speeds

- 10/100/1000MbE/RJ45
- 10GbE / SFP+
- 25GbE / SFP28
- 40GbE / QSFP+
- 100GbE/QSFP28

L2 monitoring tool

- ✔ Port statics/RMON counters RX - TX
- ✔ Checksum error counters
- ✔ Packet decode counters
- ✔ Drop counters
- ✔ IPF table counters
- ✔ Sensor monitoring
- ✔ PPS statistics
- ✔ IEEE 1588 PTP

Daqscribe Ethernet recorders are Assured Data Availability Solutions (ADAS) offering 100% packet capture, record, and playback capabilities

USE CASES

Spectrum Research

Electromagnetic sensing & analytics
- ✓ Wideband digital receivers
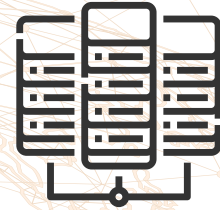- ✓ Radio frequency system-on-a-chip
- ✓ Digital signal processing

Telecommunications

Network planning, rollout, and QoS
- ✓ 5G wireless access
- ✓ Mobile edge computing
- ✓ Core networks

Cyber Operations

Computer & Network Defense
- ✓ Offensive computing
- ✓ Deep packet inspection
- ✓ Network capture & store

5G · O-RAN ALLIANCE · GNURadio THE FREE & OPEN SOFTWARE RADIO ECOSYSTEM · IEEE · mipi alliance · VITA Radio Transport Supported

A VERSATILE PROCESSING PLATFORM
(software examples)

All other trademarks and brand names are the property of their respective owners and do not constitute an endorsement.

PROCITEC® · COMINT consulting · REDHAWK · ntop

VIAVI · MathWorks® · WIRESHARK

Daqscribe
8 Inverness Drive, Suite 102, Centennial, CO 80112

email: contact@daqscribe.com

phone: **+1 (303) 220-7457**
fax: +1 (303) 220-7450
daqscribe.com

facebook.com/daqscribe
twitter.com/daqscribe
linkedin.com/company/3578342

Innovated and produced in the U.S.A