

TERADEK ART

The Video-Aware Ultra-Low Latency Streaming Protocol

ART is a UDP video streaming protocol that delivers ultra-low latency (ULL) audio and video with mission-critical resilience over public and private networks. The protocol was jointly developed by Teradek and Amimon using the same methodology behind Teradek's Emmy® and Academy Award®-winning Bolt wireless video system.

KEY FEATURES

- <100ms latency over WAN
- AES-256 encryption
- Easy firewall traversal
- No re-transmission delays
- Rapid recovery over challenging networks
- Support for HD and 4K workflows

How Does It Work?

ART evaluates both video content and network characteristics simultaneously, optimizing the compression for both in one step. The protocol is adaptive and utilizes joint source channel coding, which offers robust FEC to the most significant video information, eliminates re-transmission delays, and constrains the peak bitrate.

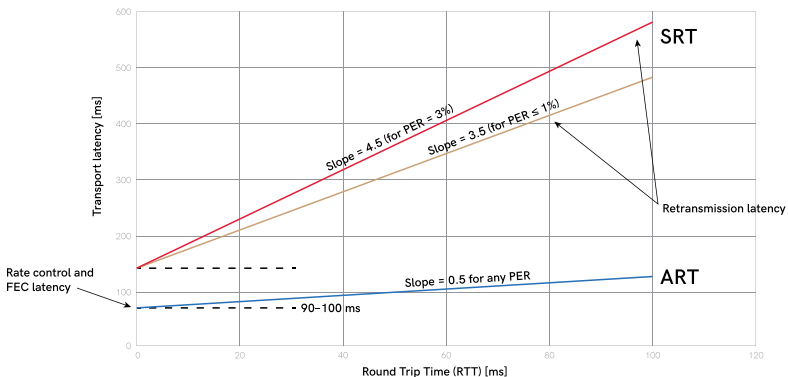
How Is It Used?

ART is designed for use in point-to-point video workflows (P2P) and multipoint distribution when used in conjunction with Teradek's Core cloud platform. Typical solutions for the protocol include remote and interactive live productions, robotic / vehicular teleoperation, and real-time monitoring and collaboration.

How Does ART Compare?

Low latency streaming protocols like SRT introduce delays that are noticeable by the user, particularly so when video is required for remote control: cloud gaming, remote machinery, and remote driving. Despite increasing Packet Error Rates (PER) and Round Trip Time (RTT), ART's streaming latency does not significantly increase as it does from others like SRT (see graph below).

Transport Latency



Why Does ART Matter?

ART overcomes the challenges of streaming over lossy public networks, namely video pixelation, stuttering, freezing, sync loss, delays, and total dropouts; all whilst retaining ultra low latency. It is the only protocol that optimizes for both video quality and network characteristics simultaneously, delivering the best possible streaming experience despite network performance. Video freezes are extraordinarily rare due to ART's ability to smoothly adapt to varying network conditions.

ART Provides:

- More natural, lifelike bi-directional streaming interaction between anchors and guests
- Graceful degradation and rapid recovery over networks with significant packet loss
- Easy firewall traversal with various operational modes
- Constrained peak bit rates and no re-transmission delays
- Extreme resilience over challenging networks
- Forward Error Correction (FEC)
- Rapid recovery when the network returns to normal

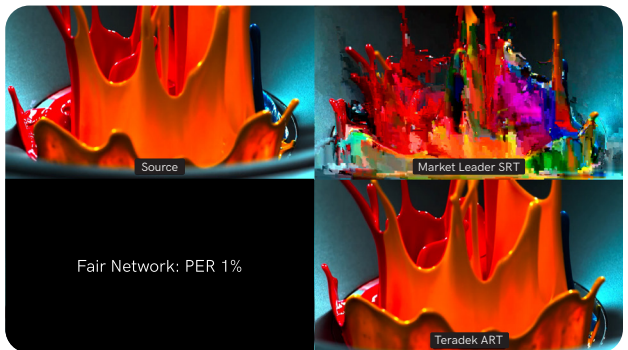
How Is ART Different From SRT?

Unlike SRT, ART does not require retransmissions. Instead, ART relies on a combination of patented techniques and Forward Error Correction to retain its ultra low latency despite poor network conditions.

Want to see ART
in action?

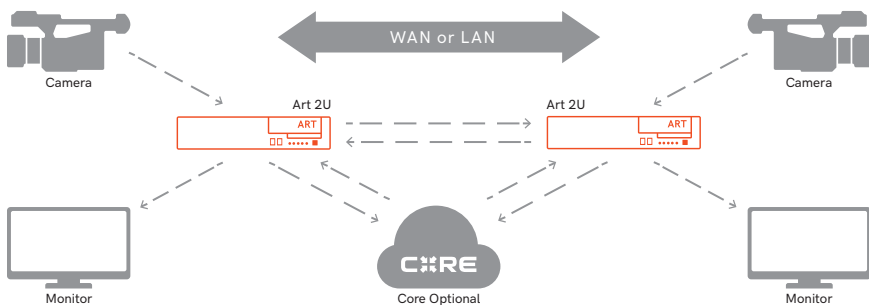


Hover your phone over this QR code to watch a short video that demonstrates the ART difference.



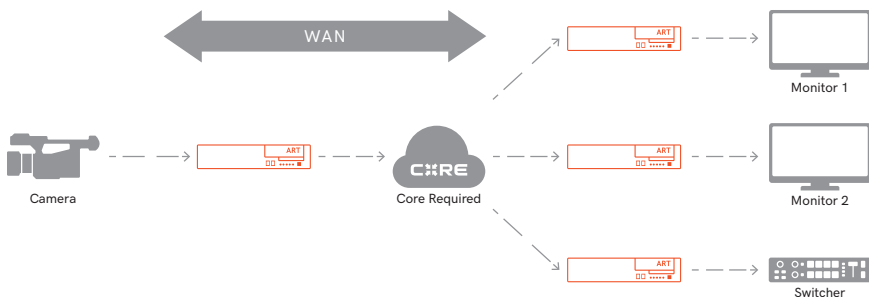
Point-to-Point (WAN)

The ART 2U system can stream unidirectionally over a WAN to other ART systems. With a second ART system, it can operate bidirectionally: delivering real-time, broadcast-grade audio and video for interviews and interactive media. For remote monitoring and configuration of your ART devices, an optional subscription to Core Cloud is available.



Point-to-Multipoint (WAN)

With Teradek's Core Cloud platform, ART 2U can distribute a single video feed to multiple ART systems, all while maintaining an extremely robust, ultra-low latency stream.



TERADEK ART 2RU

Hardware Specification



Video I/O

Video Input	1 x 6G/3G/HD/SD-SDI BNC (75 Ohms) 1 x HDMI Type A
Video Output	1 x 6G/3G/HD/SD-SDI BNC (75 Ohms) 1 x HDMI Type A
Supported Resolutions	4Kp 30/29.97/24/23.98 1080p 60/59.94/50/30/29.97/25/24/23.98 1080i 60/59.94/50 720p 60/59.94/50

Video Processing

Video Compression	ISO MPEG-H Part 2: High Efficiency Video Coding (HEVC)/ITU H.265 HEVC: Main
Supported Video Transport Protocols	ART
Supported Video Bitrate	4000 kbps to 30 Mbps
Format Conversion	Built-in video scaler and deinterlacer

Video Processing

Audio Input/Output	Embedded SDI/HDMI
Audio Compression	AAC-LC (128kbps, 192Kbps, 256Kbps)
Audio Channels (Embedded)	Mono, Stereo, Surround, 7.1
Audio Sample Rate	48Khz

Interfaces

Configuration Interface	Feature-rich Web UI for configuration and control LED Indicators
Ethernet	2 x 10/100/1000 BASE-T Gigabit Ethernet (RJ45)
Encryption	AES-256

Physical Attributes

Rackmount	2 RU
Weight	8.9 lb / 4.1 kg
Dimensions (LxWxH)	17 x 12.1 x 3.5 in / 431.8 x 307.3 x 88.9 mm

Power

Power Input	110 to 240 VAC
Power Consumption	495 W