

RIST configuration cheat sheet

Profiles, ports, latency settings, bonding modes, and the most common pitfalls. One page, print-ready.

Simple Profile

TR-06-1 (Oct 2018) — baseline interop

Transport: RTP over UDP, default port 1968

Reliability: NACK ARQ (RFC 4585 Bitmask + Range NACK)

FEC: SMPTE 2022-1 XOR, optional

Bonding: SMPTE 2022-7 seamless + load sharing

Encryption: none

Use when: private/leased line; baseline interop with legacy SMPTE 2022-2 gear.

Main Profile

TR-06-2 (Mar 2020, refreshed Jun 2024) — production default

Transport: GRE-in-UDP (RFC 8086), default port 4755

Encryption: DTLS 1.2 (AES-128/256-GCM) + PSK option

Auth: certificate or TLS-SRP

Tunnel: multiplex many streams + in-band control

Other: NULL-PID drop, NAT traversal, extended seq numbers

Use when: any open-internet path; satisfies most procurement specs.

Advanced Profile

TR-06-3 (2021, refreshed 2023) — broadcast-only

Payload: arbitrary IP (SMPTE ST 2110, ST 2022-6, MPEG-TS)

Overhead: ~0.6% (reduced-overhead encapsulation)

FEC: LDPC, Raptor codes, plus SMPTE 2022-1

Relay: TR-06-4 Part 3 SIP-style proxy (firewall-friendly)

Encryption: inherits Main Profile DTLS

Use when: uncompressed studio essence over public internet.

Recommended latency budget by path (4× RTT floor + jitter margin)

Path scenario	Typical RTT	Floor	Recommended setting
Wired LAN, same city	5–15 ms	60 ms	150 ms
Wired internet, same country	20–40 ms	160 ms	300–500 ms
Wired internet, transatlantic	80–120 ms	480 ms	800–1,200 ms
4G mobile uplink (bonded)	80–200 ms	800 ms	1,500–2,500 ms
5G mobile uplink	30–80 ms	320 ms	800–1,500 ms
Geostationary satellite	500–700 ms	2,800 ms	4,000–8,000 ms
LEO satellite (Starlink)	25–60 ms	240 ms	500–1,200 ms

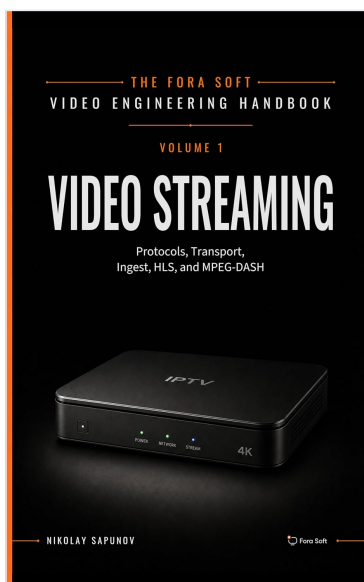
Pick a bonding mode

Seamless redundancy (SMPTE 2022-7) — send a full copy of the stream on each link. Receiver picks first arrival. **2× wire bandwidth** for zero packet loss on link failure. Pick when bandwidth is cheap and downtime is unacceptable.

Load sharing — split packets across links. Aggregate bandwidth is sum of links. ARQ rebuilds loss over the survivor on link failure (brief glitch possible). Pick for bonded mobile uplinks and bandwidth-constrained paths.

Pre-flight checklist

- ☐ Receiver explicitly requires Main Profile (reject Simple to ensure DTLS).
- ☐ Latency budget $\geq 4 \times$ measured worst-case RTT plus jitter margin.
- ☐ Same bonding mode (seamless or load-share) on sender and receiver.
- ☐ Firewall opens UDP/4755 (Main) or UDP/1968 (Simple), not both.
- ☐ RTCP feedback interval tuned to budget (default 100 ms; tight paths use 5–10 ms).
- ☐ PSK passphrase ≥ 32 random characters; rotate periodically.



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This sheet covers RIST profiles, ports, latency settings and bonding modes for contribution links. Volume 2 covers contribution in depth: ingest over RTMP, SRT and RIST, TCP vs UDP and congestion control, NAT traversal, and the glass-to-glass latency budget.

WHAT YOU WILL FIND INSIDE

- Ingest with RTMP, SRT and RIST
- Congestion control and loss recovery
- Glass-to-glass latency budgets
- NAT traversal for contribution links

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