RTCInspect Artifact Abstract

Victor Goeman Tom Cordemans Christoph Sanders Jorn Lapon
Vincent Naessens

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1 Artifact Abstract

This artifact accompanies the paper *"Real-Time Compromise: Investigating RTC Security in Consumer IoT"* and contains **RTCInspect**, an open-source framework for automated passive analysis of real-time communication (RTC) traffic. The tool inspects packet captures and identifies security-relevant properties and weaknesses in signaling, connectivity establishment, and cryptographic handshakes across protocols such as SDP, STUN, TURN, ICE, DTLS, and TLS.

The artifact is intended to reproduce the core methodological contribution of the paper: a scalable analysis workflow for detecting insecure RTC deployments, including unencrypted or non-integrity-protected signaling, exposed long-term credentials, reused certificates, and weak cryptographic parameters. Reviewers should verify that the framework can be installed and executed successfully, that the included example packet captures can be analyzed end-to-end, and that the generated outputs support the main findings described in the paper.

In particular, the evaluation should confirm that RTCInspect produces meaningful structured results and visualizations that highlight the differences between standardized and generally better-secured web-based RTC deployments and the weaker, more fragmented practices observed in consumer IoT systems. The artifact is designed to be consistent with the accepted paper, as complete as possible with respect to its core claims, documented for reproducibility, and reusable for further RTC security research.

All setup, installation, and execution instructions are provided in the repository README. To support reproducibility and ease of use, we also provide a Docker image that enables reviewers to run the tool in a preconfigured environment with minimal setup:

Listing 1: bash version

```
docker pull christoph0sanders/rtcinspect:1.0.2
docker run -d --name rtc-inspect -p 8080:8080 christoph0sanders/rtcinspect:1.0.2
```

2 Link to the Artifact

The source code and documentation for the artifact are publicly available at: `https://github.com/ku-leuven-msec/RTCInspect`

The PCAP files used to generate the reported results are available on Figshare: `https://doi.org/10.6084/m9.figshare.32055891` . We kindly ask that these files not be redistributed or shared.