Ranked / Risked Threat Report

Revision

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SME

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Abstract

This document describes the process to perform and report on the rank / risk activity performed on the output of the threat modeling of an element of the system.

Group / Owner

Security / Security Architect

Motivation

This document is motivated by the need to determine the relative severity (rank) and impact (risk) of the system element's threat candidates. This is necessary in order to properly assess the disposition of these candidates and required given the nature of safety-critical, cyber-physical systems, subject to certifications such as **ISO 21434** and **ISO 26262**.

License

Overview

The ranked / risked threat report summarizes the analysis performed on the output of the threat modeling activity which provides input into the threat candidate slicing activity. As indicated by the title, there are two discrete operations which take place. The first is the ranking of threat candidates to determine their relative severity. The second is the risking of threats to determine their potential harm.

The following diagram illustrates the process to be used:
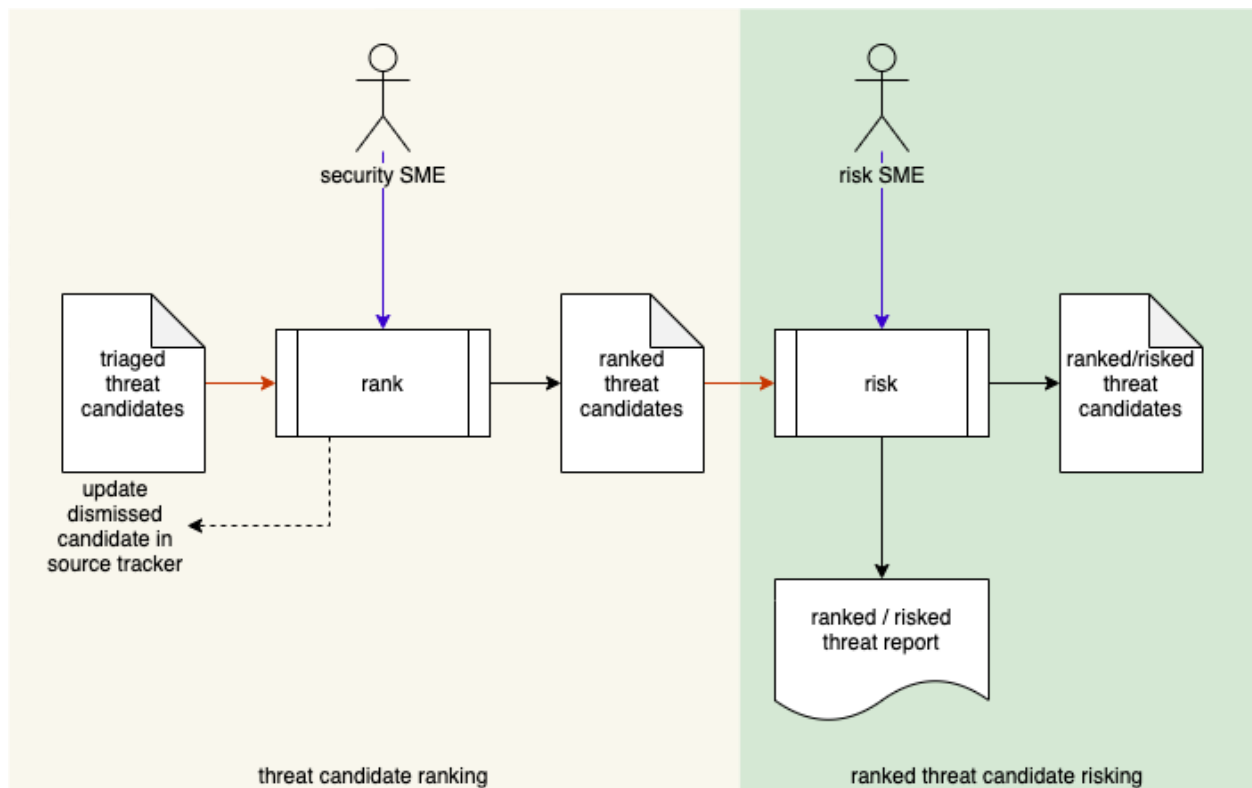
Process

The process activities shown here are documented in the **Threat Prioritization Plan** [1]. The triaged threat candidates are ranked by the security SME and then ranked by the risk SME. The outputs are a **Ranked / Risked Threat Report** and a file containing a set of ranked / risked threat candidates. The latter is the input to the process creating the **Threat Report** [3].

Ranked / Risked Threat Report

The ranked / risked threat report should detail the ranked and risked threats enumerated in the triaged threat candidates list. The report should be organized into summary and ranked / risked threat details sections. The summary includes:

- Description of the system
- Threat candidates' source [**threat modeling**, **attack surface analysis**, **incident response**]
- URI to threat candidate source tracker
- Description of ranking methodology
- Description of risking methodology

Individual ranked / risked threat candidates include:

- Threat ID (unique)
- Summary of the threat
- Detailed description of the worst case if threat is exploited
- Rank (severity)
  - Raw value (raw rank scoring system value)
  - Canonical value (such as a **CVSS** [6] vector)
  - Quantized value (ISO 21434 RQ-15-10: [**none**, **very low**, **low**, **medium**, **high**])
  - Justification of value determination
- Risk (impact)
  - Raw value (raw risk scoring system value)
  - Canonical value
  - Quantized value (ISO 21434 RQ-15-16: [**0**, **1**, **2**, **3**, **4**, **5**])
  - Justification of value determination

It is recommended that the report be generated from a portable data representation so that it can be programmatically manipulated.

References

1. **Threat Prioritization Plan** (AVCDL secondary document)
2. **Threat Modeling Report** (AVCDL secondary document)
3. **Threat Report** (AVCDL secondary document)
4. **Attack Surface Analysis Report** (AVCDL secondary document)
5. **Incident Response Report** (AVCDL secondary document)
6. **CVSS (Common Vulnerability Scoring System)**
   https://www.first.org/cvss/