Collabora

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SUSE

# SUSE Security Team


MySQL

LINUX MAGAZINE

datto

ADMIN Network & Security

fedora

TUXEDO COMPUTERS

.riessapplications

Required Magic
advanced technology

# Agenda

- Introducing the team
- Reactive Security
- Proactive Security
- Summary/Outlook

# Who are we?

Johannes Segitz
Sr. Security Engineer
jsegitz@suse.comjsegitz@suse.com

Marcus Meissner
Sr. Projectmanager Security
meissner@suse.com

# Introducing the team

**Teamlead**: Ivan Teblin
**Projectmanager**: Marcus Meissner
**Certifications Projectmanage**r: Katia Rojas
**Security Engineers:**

- Alexander Bergmann
- Alexandros Toptsoglou
- Hans Löhr
- Johannes Segitz
- Malte Kraus
- Matthias Gerstner
- Robert Frohl
- Wolfgang Frisch

Open Positions: 1 Reactive Engineer, 1 Proactive Engineer

# Reactive vs Proactive

**Reactive**:

- Incident handling
- Marcus, Alexander, Alexandros, Robert, Wolfgang

**Proactive**:

- Audit programs and system services (systemd, dbus, network)
- Approve product releases
- All security work before shipment
- Johannes, Malte, Matthias, Hans

# Reactive Security

# Reactive Security

- Reacting on reported security issues
- Roles:
  - Incident Managers
  - Update Manager
- Coordinating from begin to end, delegate
  - Fixing to package maintainer
  - Source review to OBS/IBS reviewers
  - Testing to QA
- Release the update
- Documentation
  - Human and machine readable

# Incidents

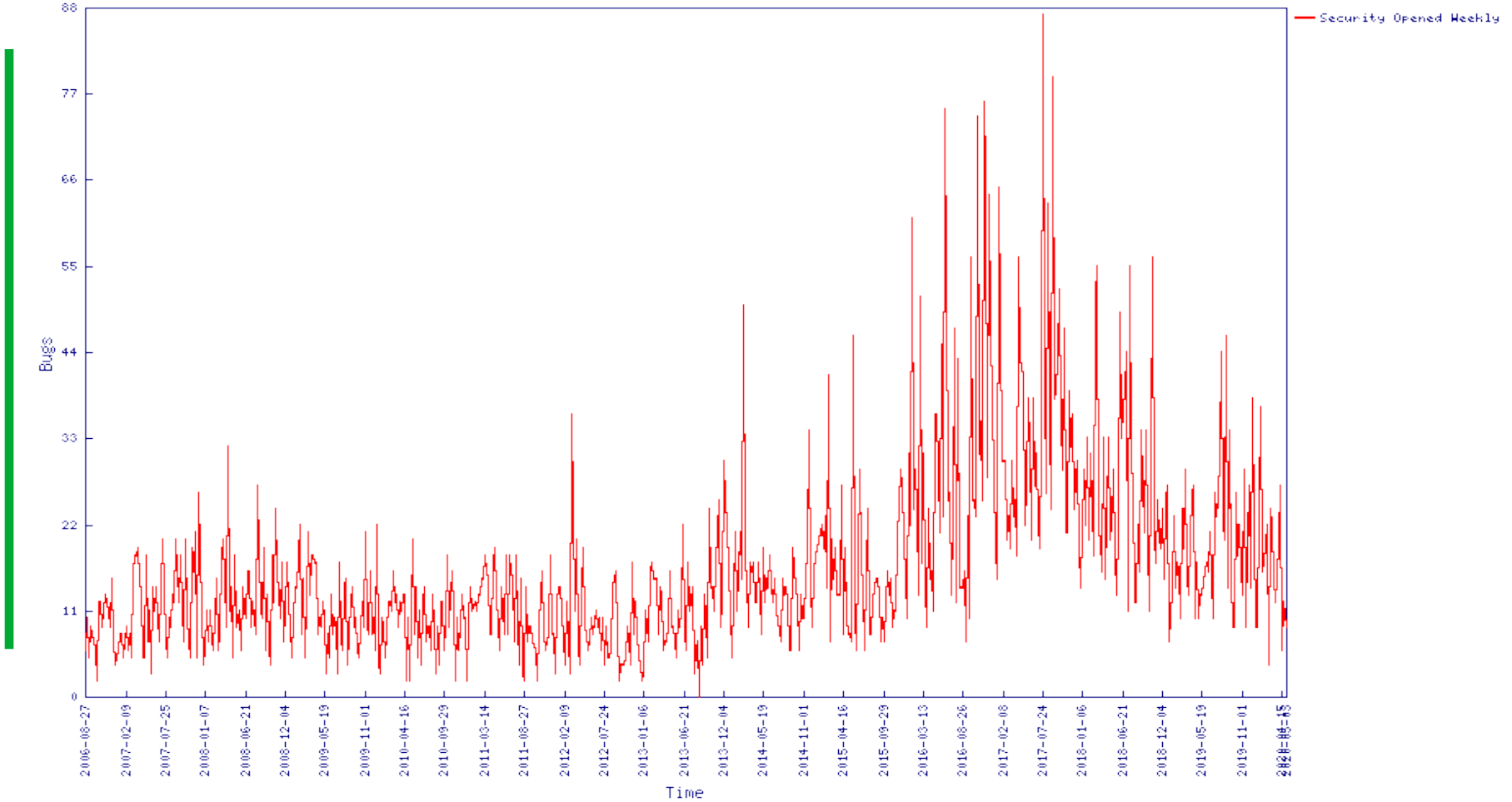
## Open bug

- Summary line: **VUL-[012]: CVE: package: summary**
- Description with references / links
- Patches and reproducers attached
- Assign to packager / bugowner

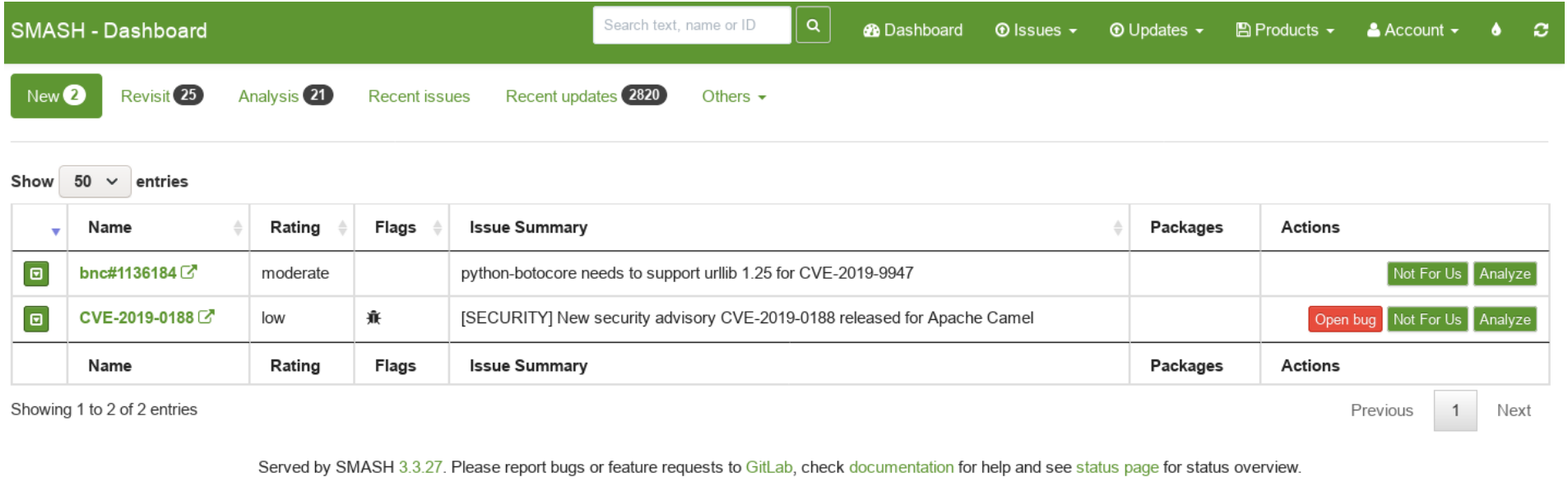
## SMASH issue

- Simplified rating and CVSSv3 scoring
- Assign affected Software (for SUSE Linux Enterprise family)
- Planning Update or Starting Update immediately

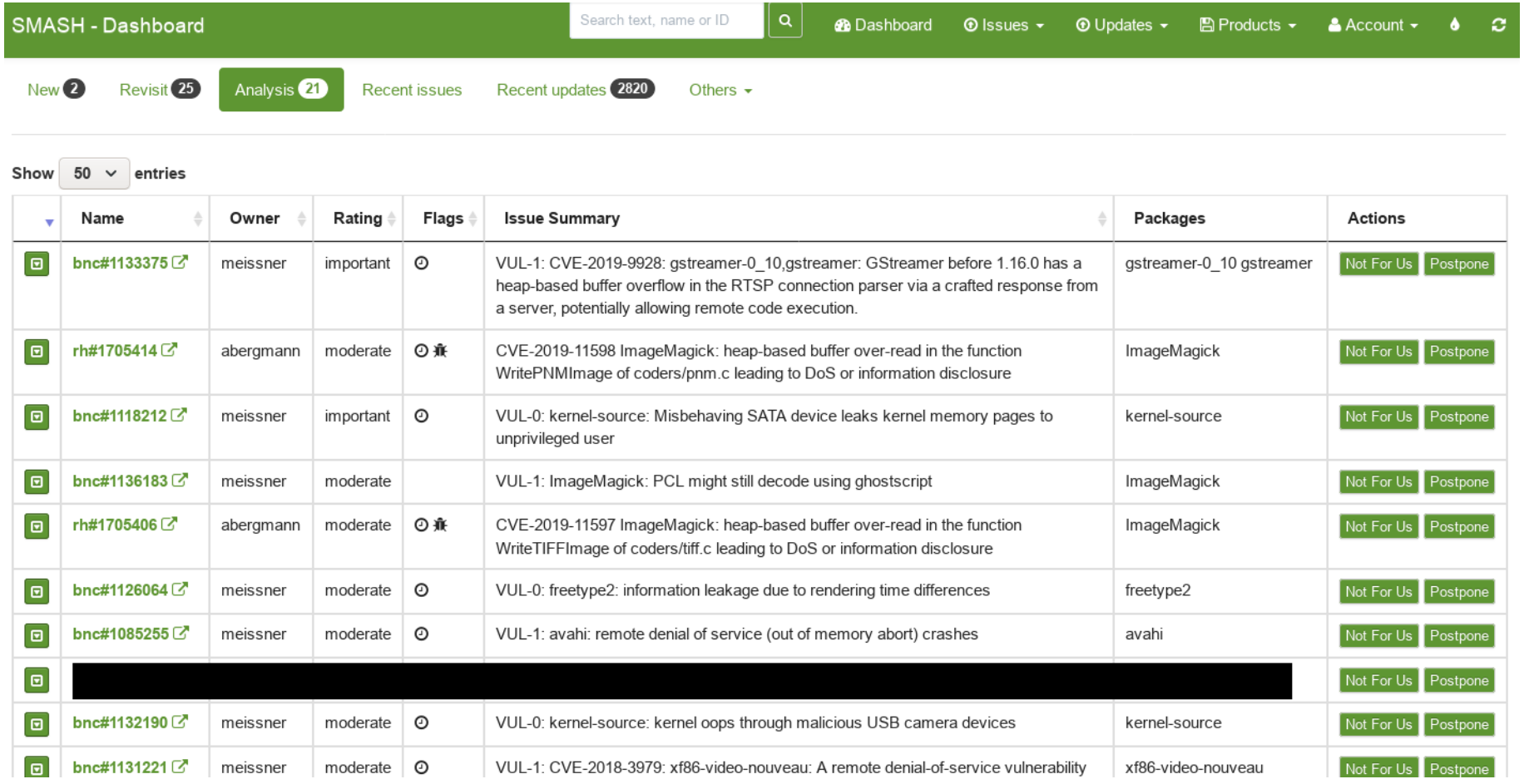
# Opened bugs per week: 2006 – 2020



# SMASH Ticket System



# SMASH Ticket System



# Update submissions

Packager submits updates

Security Team

- Writes metadata (summary, description, issues)
- Checks if building
- Pushes to QA

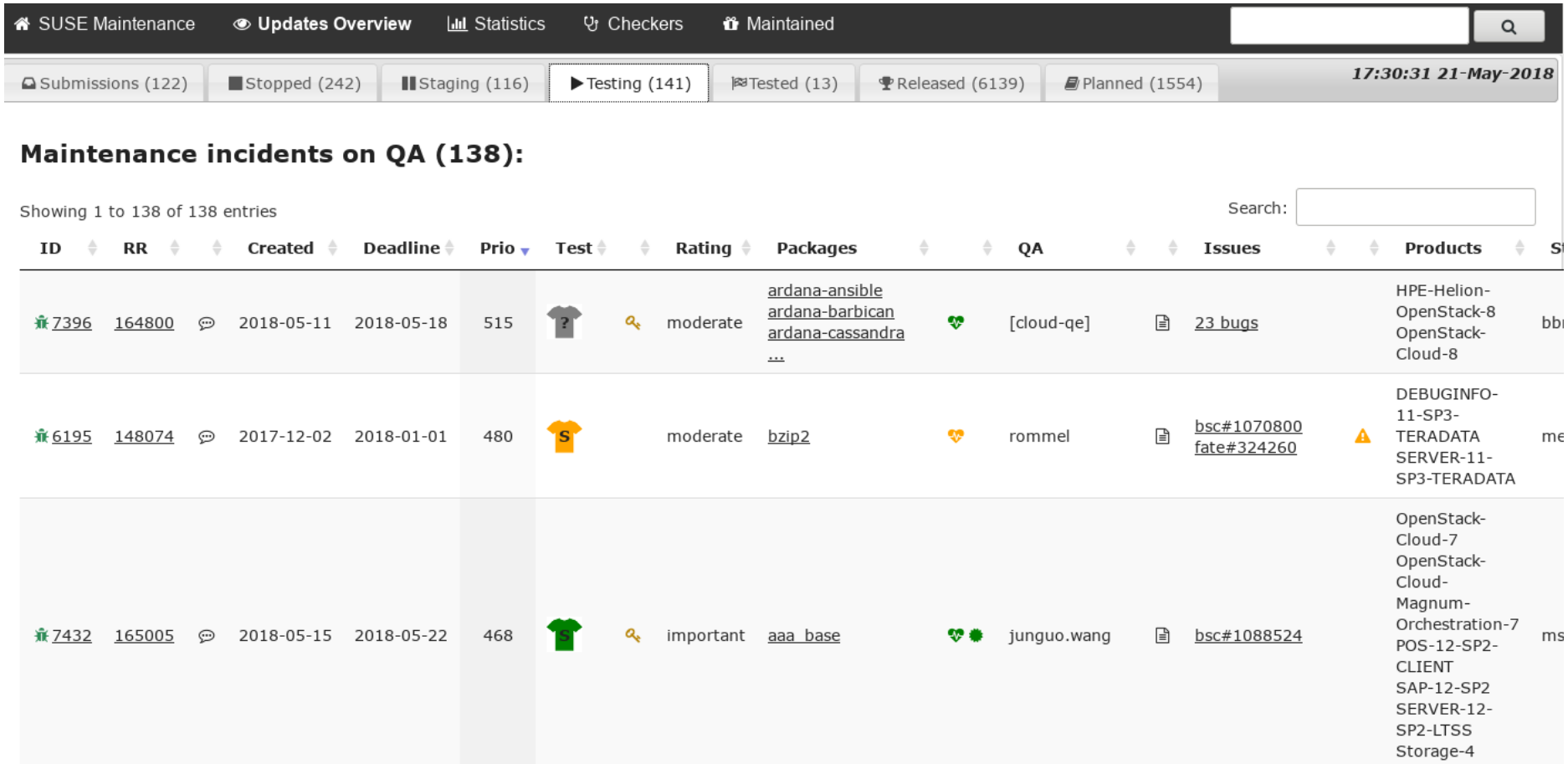
QA tests update

- Automated and manual testing

Security Team

- Releases update
- Additional documentation work

# Update Overview



SUSE Maintenance | Updates Overview | Statistics | Checkers | Maintained

Submissions (122) | Stopped (242) | Staging (116) | Testing (141) | Tested (13) | Released (6139) | Planned (1554)

17:30:31 21-May-2018

## Maintenance incidents on QA (138):

Showing 1 to 138 of 138 entries

Search:

| ID | RR | Created | Deadline | Prio | Test | Rating | Packages | QA | Issues | Products | S |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 7396 | 164800 | 2018-05-11 | 2018-05-18 | 515 | ? | moderate | ardana-ansible<br>ardana-barbican<br>ardana-cassandra<br>... | [cloud-qe] | 23 bugs | HPE-Helion-OpenStack-8<br>OpenStack-Cloud-8 | bb |
| 6195 | 148074 | 2017-12-02 | 2018-01-01 | 480 | S | moderate | bzip2 | rommel | bsc#1070800<br>fate#324260 | DEBUGINFO-11-SP3-TERADATA<br>SERVER-11-SP3-TERADATA | me |
| 7432 | 165005 | 2018-05-15 | 2018-05-22 | 468 | S | important | aaa_base | junguo.wang | bsc#1088524 | OpenStack-Cloud-7<br>OpenStack-Cloud-Magnum-Orchestration-7<br>POS-12-SP2-CLIENT<br>SAP-12-SP2<br>SERVER-12-SP2-LTSS<br>Storage-4 | ms |

# Reactive work – what is delivered

The updates themselves!

Notifications for every update

- Web https://www.suse.com/support/update/
- E-Mails to sle-security-updates@lists.suse.com, sle-updates@lists.suse.com and opensuse-security-announce@opensuse.org
- CVRF data http://ftp.suse.com/pub/projects/security/cvrf/

Autogenerated information:

- CVE webpages https://www.suse.com/security/cve/
- OVAL data https://www.suse.com/support/security/oval/

# Some statistics for 2019

- CVEs processed: 2496 (2732 in 2018)
- Bugs opened: 2079 (2284)
  - 306 (140) Linux Kernel
- Security updates released:
  - 1335 (compared to 1499) for SLE
  - 952 (978) for openSUSE (562 (328) SLE imports)  (around 59%)
- CVEs fixed: 2314 (previous 2386)
  - 1775 openSUSE
  - 1830 SLE

# Proactive Security

# Proactive Security Tasks

Making products as secure as possible before shipment

Primary tool: Our zoo of bots and automated checks during build/submission (mainly rpmlint):

- Non-default permissions (e.g. setuid/setgid/capabilities)
- DBUS services
- PolicyKit rules
- PAM modules
- Cronjobs
- Dangerous constructs in the packaging (e.g. %post/%pre, rpmlint suppression)

# Proactive Security Tasks

Massive improvements in the last two years in this area:

- Added many additional vectors to be considered
- Whitelist content, not just filepaths
- Check for devices
- Have whitelists unique to each codestream (ongoing)
- Improved process of maintaining whitelists (github as primary source)
- Improved visibility in the tricky rpmlint(-mini) setup in our products
- Vary badness of warnings between home projects and products

Matthias Gerstner was the driving force behind a lot of this

# Proactive Security Tasks

Example for a message you might see during build

```
[  131s] ppc64-diag.ppc: E: cronjob-unauthorized-file (Badness: 10) /etc/cron.daily/run_diag_encl
[  131s] A cron job file is installed by this package. If the package is
[  131s] intended for inclusion in any SUSE product please open a bug report to request
[  131s] review of the package by the security team. Please refer to
[  131s] https://en.opensuse.org/openSUSE:Package_security_guidelines#audit_bugs for
[  131s] more             information
```

Please talk to us as soon as possible. We’re swamped and need to prioritize

For products higher badness values will prevent your package from building

# Proactive Security Tasks

Additionally:

- Reviewing/add new compiler hardening flags
- Review and audit of new components
- Whatever comes up, e.g. review changes in OBS
- More recently: Code reviews for daemons listening on the network. E.g. Matthias' awesome work on kdeconnectd

# How we work

Security audits are “rolling”

- Based on openSUSE Factory development
- Based on packages
- But also on final product

Most of our work for SUSE is done in openSUSE Factory!

113 new AUDIT-0 bugs in 2019 (74 in 2018)

# Challenges

- Not enough hours in the day ;)
- Competing demands, missing granularity/user decision in existing mechanisms (e.g. polkit profiles)
- Old technology used by customers (e.g. missing open flags), mostly doesn’t concern openSUSE

# Roadmap

- Extend coverage to new products/containers. CaaSP and CAP are still a problem for us as they fall out of our usual processes
- Embed engineers into product teams/foster security champions
- Renew efforts around AppArmor, maybe SELinux
- CFI
- More automation & more manpower

# Where the community can help

- Tracking works mostly fine and is difficult to work with the community due to private security disclosures
- We always need help with fixing issues that we track. This is a good way to learn more about security
- As AppArmor is the technology used for openSUSE: Additional profiles/improve existing


# Thank You