(TENTAR) (DE VERDADE)
COMO USAR O APPARMOR NO DEBIAN?

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ABOUT ME

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Privacy + Anonimity + Security
Monero + Anti-forensics

MiniDebConf MACEIÓ 2025

AppArmor?

QUESTIONS

(a) Who has used or is using AppArmor?

(b) Who has already created\changed an AppArmor profile?

(c) Who has had problems with AppArmor?

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AppArmor?

MISCONCEPTIONS

- Focus on server
- Focus on processes that face users or Internet
- Focus on breaking things

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AppArmor?

DOESN’T

- Doesn’t replace traditional file permissions
- Doesn’t restrict database permissions
- Doesn't validate user inputs (webpages, etc)
- Doesn’t solve all problems

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Let's enable AppArmor by default (why not?)

- *To*: debian-devel@lists.debian.org
- *Subject*: Let's enable AppArmor by default (why not?)
- *From*: intrigeri <intrigeri@debian.org>
- *Date*: Fri, 04 Aug 2017 19:31:36 -0400
- *Message-id*: <[🔎] 857eyij4fb.fsf@boum.org>
- *Reply-to*: debian-devel@lists.debian.org

```
Hi!

tl;dr: I hereby propose we enable AppArmor by default in testing/sid,
and decide one year later if we want to keep it this way in the
Buster release.

My goals when initiating this discussion are:

 - Get a rough idea of what amount of effort the Debian project is
   happy (and able) to invest into such proactive security measures.

 - Learn about any relevant social & technical concerns I am not
   aware of.

I don't expect we'll make a decision based on this very proposal:
I expect the proposal will need to be refined, or abandoned, to take
into account what we will learn during this preliminary discussion.
```

https://lists.debian.org/debian-devel/2017/08/msg00090.html

A very brief overview about AppArmor profiles

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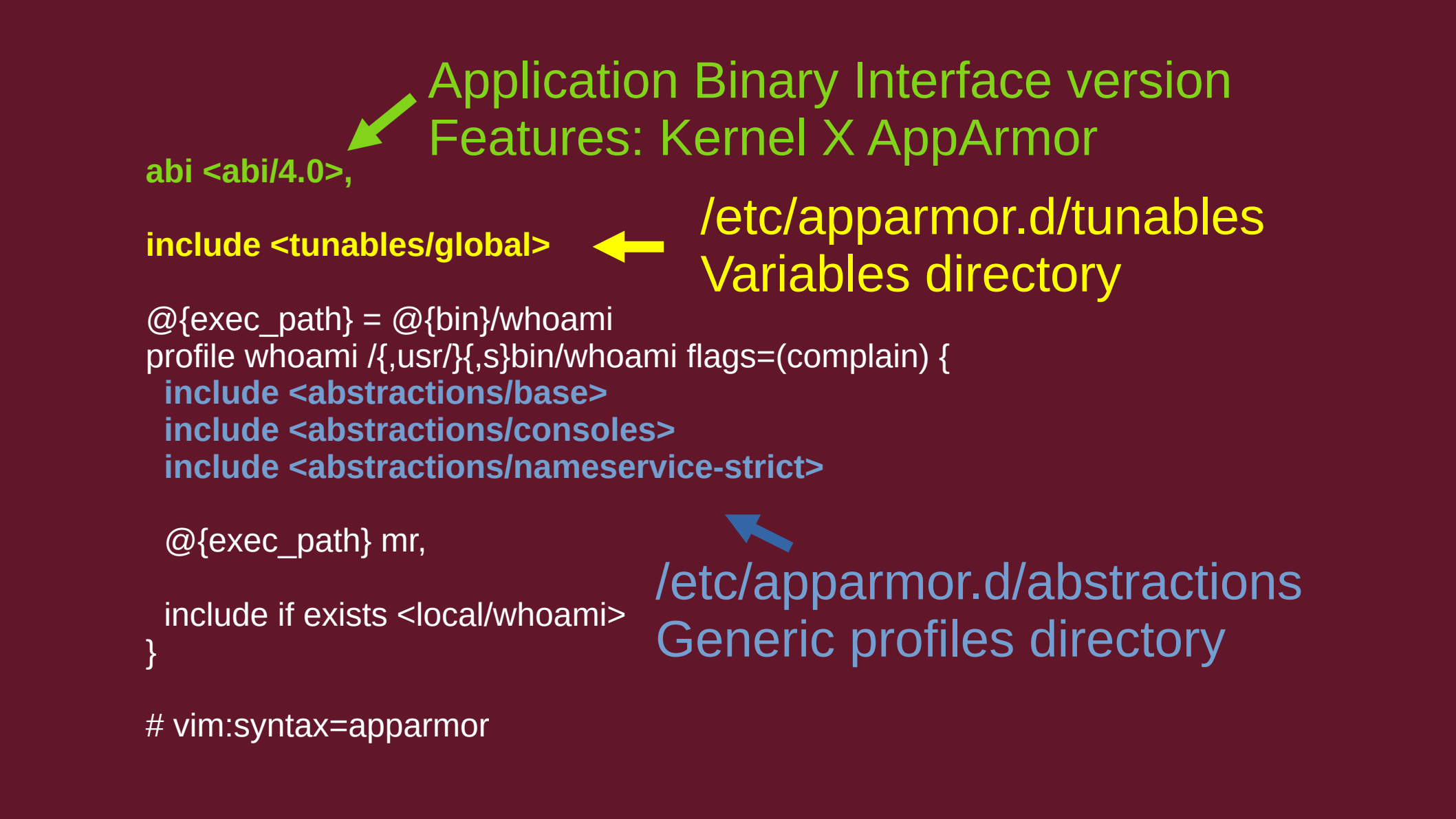
Application Binary Interface version
Features: Kernel X AppArmor
abi <abi/4.0>,
include <tunables/global>
/etc/apparmor.d/tunables
Variables directory
@{exec_path} = @{bin}/whoami
profile whoami /{,usr/}{,s}bin/whoami flags=(complain) {
include <abstractions/base>
include <abstractions/consoles>
include <abstractions/nameservice-strict>
@{exec_path} mr,
include if exists <local/whoami>
}
# vim:syntax=apparmor
/etc/apparmor.d/abstractions
Generic profiles directory

```
abi <abi/4.0>,

include <tunables/global>

@{exec_path} = @{bin}/nmap
profile nmap /{,usr/}{,s}bin/nmap flags=(complain) {
  ...
  capability net_bind_service,
  capability net_raw,

  network inet dgram,
  network inet6 dgram,
  network inet stream,
  ...
  signal (receive) set=(term, kill) peer=zenmap,
  ...
  owner @{tmp}/zenmap-stdout-* rw,
  owner @{tmp}/zenmap-*.xml rw,
  ...
```

Variable definition

Attachment specification
Attach profile to app

Profile name

Profile flags:
- enforce (default if not specified)
- complain, unconfined, etc

```
abi <abi/4.0>,

include <tunables/global>

@{exec_path} = @{bin}/sudo
profile sudo /{,usr/}{,s}bin/sudo flags=(attach_disconnected,complain) {
  include <abstractions/base>
  include <abstractions/app-launcher-root>
  include <abstractions/app/sudo>

  capability chown,
  capability fowner,
  capability mknod,
  capability sys_ptrace,

  network inet dgram,
  network inet6 dgram,

  ptrace read,

  signal send set=(winch, hup, term),
  ...
```

Capability rules

Network rules

Ptrace rules

Signal rules

```
...
@{exec_path} = @{bin}/sshd
profile sshd /{,usr/}{,s}bin/sshd  flags=(attach_disconnected,complain) {
  ...
  @{exec_path} mrix,

  @{bin}/@{shells}                rux,
  @{bin}/false                   rix,
  @{bin}/nologin                  rpx,
  @{bin}/passwd                   rpx,
  @{lib}/{openssh,ssh}/sftp-server  rpx,
  @{lib}/{openssh,ssh}/sshd-session rix,
  ...
  /var/lib/lastlog/ r,
  /var/lib/lastlog/* rwk,
  /var/lib/wtmpdb/ r,
  /var/lib/wtmpdb/* rwk,

  # For scp
  owner @{user_download_dirs}/{,**} rwl,
  owner @{user_sync_dirs}/{,**} rwl,
  ...
```

File access modes

AppArmor + SystemD

[Service]
...
AppArmorProfile=profilename

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AppArmor + Containers

https://kubernetes.io/docs/tutorials/security/apparmor/

https://docs.docker.com/engine/security/apparmor/

Demo

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apparmor.d

https://github.com/roddhjav/apparmor.d
https://apparmor.pujol.io/

~1600 profiles
aa-log
Full System Policy

Demo

AppArmor Play
https://play.pujol.io
ssh root@play.pujol.io
Password: apparmor

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AppArmor + Demo

AuthPass privacy issues?

https://github.com/authpass/authpass/issues/391

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AppArmor + Demo

LibreOffice - CVE-2024-12425

https://codeanlabs.com/blog/research/exploiting-libreoffice-cve-2024-12425-and-cve-2024-12426/

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AppArmor + Future

- Permission Prompting
- Apparmor extension file
- Object delegation
- many others

https://gitlab.com/apparmor/apparmor/-/issues/510

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Thanks!

https://moisesmsf.github.io/awesome-apparmor

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