

## [ Lynis 2.7.5 ]

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#####
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See the LICENSE file for details about using this software.
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2007-2019, CISOfy - https://cisofy.com/lynis/
Enterprise support available (compliance, plugins, interface and tools)
```

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#####
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[+] **Initializing program**

```
-----
- Detecting OS... [ DONE ]
- Checking profiles... [ DONE ]
```

```
-----
Program version:      2.7.5
Operating system:    Linux
Operating system name: Ubuntu Linux
Operating system version: 18.04
Kernel version:      4.15.0
Hardware platform:   x86_64
Hostname:            pc07
```

```
-----
Profiles:            /etc/lynis/default.prf
Log file:            /var/log/lynis.log
Report file:         /var/log/lynis-report.dat
Report version:      1.0
Plugin directory:    /etc/lynis/plugins
```

```
-----
Auditor:             [Not Specified]
Language:            en
Test category:       all
Test group:          all
```

```
-----
- Program update status... [ NO UPDATE ]
```

[+] **System Tools**

```
-----
- Scanning available tools...
- Checking system binaries...
```

[+] **Plugins (phase 1)**

```
-----
Note: plugins have more extensive tests and may take several minutes to complete
```

```
- Plugin: debian
```

```
[
```

[+] **Debian Tests**

```
-----
- Checking for system binaries that are required by Debian Tests...
- Checking /bin... [ FOUND ]
- Checking /sbin... [ FOUND ]
- Checking /usr/bin... [ FOUND ]
- Checking /usr/sbin... [ FOUND ]
- Checking /usr/local/bin... [ FOUND ]
- Checking /usr/local/sbin... [ FOUND ]
- Authentication:
- PAM (Pluggable Authentication Modules):
  - libpam-tmpdir [ Not Installed ]
  - libpam-usb [ Not Installed ]
- File System Checks:
- DM-Crypt, Cryptsetup & Cryptmount:
- Software:
- apt-listbugs [ Not Installed ]
- apt-listchanges [ Not Installed ]
- checkrestart [ Not Installed ]
```

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- needrestart [ Not Installed ]
- debsecan [ Installed and enabled for
cron ]
- debsums [ Installed and enabled for
cron ]
- fail2ban [ Not Installed ]
]

```

#### [+] Boot and services

```

-----
- Service Manager [ systemd ]
- Checking UEFI boot [ DISABLED ]
- Checking presence GRUB2 [ FOUND ]
- Checking for password protection [ NONE ]
- Check running services (systemctl) [ DONE ]
  Result: found 44 running services
- Check enabled services at boot (systemctl) [ DONE ]
  Result: found 71 enabled services
- Check startup files (permissions) [ OK ]

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#### [+] Kernel

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-----
- Checking default run level [ RUNLEVEL 5 ]
- Checking CPU support (NX/PAE)
  CPU support: PAE and/or NoeXecute supported [ FOUND ]
- Checking kernel version and release [ DONE ]
- Checking kernel type [ DONE ]
- Checking loaded kernel modules [ DONE ]
  Found 126 active modules
- Checking Linux kernel configuration file [ FOUND ]
- Checking default I/O kernel scheduler [ FOUND ]
- Checking for available kernel update [ OK ]
- Checking core dumps configuration [ DISABLED ]
  - Checking setuid core dumps configuration [ PROTECTED ]
- Check if reboot is needed [ NO ]

```

#### [+] Memory and Processes

```

-----
- Checking /proc/meminfo [ FOUND ]
- Searching for dead/zombie processes [ OK ]
- Searching for IO waiting processes [ OK ]

```

#### [+] Users, Groups and Authentication

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-----
- Administrator accounts [ OK ]
- Unique UIDs [ OK ]
- Consistency of group files (grpck) [ OK ]
- Unique group IDs [ OK ]
- Unique group names [ OK ]
- Password file consistency [ OK ]
- Query system users (non daemons) [ DONE ]
- NIS+ authentication support [ NOT ENABLED ]
- NIS authentication support [ NOT ENABLED ]
- sudoers file [ FOUND ]
  - Permissions for directory: /etc/sudoers.d [ WARNING ]
  - Permissions for: /etc/sudoers [ OK ]
  - Permissions for: /etc/sudoers.d/README [ OK ]
- PAM password strength tools [ SUGGESTION ]
- PAM configuration files (pam.conf) [ FOUND ]
- PAM configuration files (pam.d) [ FOUND ]
- PAM modules [ FOUND ]
- LDAP module in PAM [ NOT FOUND ]
- Accounts without expire date [ OK ]
- Accounts without password [ OK ]
- Checking user password aging (minimum) [ DISABLED ]
- User password aging (maximum) [ DISABLED ]
- Checking expired passwords [ OK ]
- Checking Linux single user mode authentication [ OK ]
- Determining default umask [ OK ]
  - umask (/etc/profile) [ NOT FOUND ]

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- umask (/etc/login.defs) [ SUGGESTION ]
- LDAP authentication support [ NOT ENABLED ]
- Logging failed login attempts [ ENABLED ]

[+] Shells
-----
- Checking shells from /etc/shells
  Result: found 7 shells (valid shells: 7).
- Session timeout settings/tools [ NONE ]
- Checking default umask values
- Checking default umask in /etc/bash.bashrc [ NONE ]
- Checking default umask in /etc/profile [ NONE ]

[+] File systems
-----
- Checking mount points
- Checking /home mount point [ SUGGESTION ]
- Checking /tmp mount point [ SUGGESTION ]
- Checking /var mount point [ SUGGESTION ]
- Query swap partitions (fstab) [ OK ]
- Testing swap partitions [ OK ]
- Testing /proc mount (hidepid) [ SUGGESTION ]
- Checking for old files in /tmp [ OK ]
- Checking /tmp sticky bit [ OK ]
- Checking /var/tmp sticky bit [ OK ]
- ACL support root file system [ ENABLED ]
- Mount options of / [ NON DEFAULT ]
- Checking Locate database [ FOUND ]
- Disable kernel support of some filesystems
- Discovered kernel modules: cramfs freevxfs hfs hfsplus jffs2 udf

[+] USB Devices
-----
- Checking usb-storage driver (modprobe config) [ NOT DISABLED ]
- Checking USB devices authorization [ ENABLED ]
- Checking USBGuard [ NOT FOUND ]

[+] Storage
-----
- Checking firewire ohci driver (modprobe config) [ DISABLED ]

[+] NFS
-----
- Check running NFS daemon [ NOT FOUND ]

[+] Name services
-----
- Checking search domains [ FOUND ]
- Checking /etc/resolv.conf options [ FOUND ]
- Searching DNS domain name [ UNKNOWN ]
- Checking /etc/hosts
- Checking /etc/hosts (duplicates) [ OK ]
- Checking /etc/hosts (hostname) [ OK ]
- Checking /etc/hosts (localhost) [ OK ]
- Checking /etc/hosts (localhost to IP) [ OK ]

[+] Ports and packages
-----
- Searching package managers
- Searching dpkg package manager [ FOUND ]
- Querying package manager
- Query unpurged packages [ FOUND ]
- debsums utility [ FOUND ]
- Cron job for debsums [ FOUND ]
- Checking security repository in sources.list file [ OK ]
- Checking APT package database [ OK ]
- Checking vulnerable packages [ WARNING ]
- Checking upgradeable packages [ SKIPPED ]
- Checking package audit tool [ INSTALLED ]
Found: apt-get

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- Toolkit for automatic upgrades (unattended-upgrade) [ FOUND ]

[+] Networking
-----
- Checking IPv6 configuration [ ENABLED ]
  Configuration method [ AUTO ]
  IPv6 only [ NO ]
- Checking configured nameservers
  - Testing nameservers
    Nameserver: 127.0.0.53 [ OK ]
- Checking default gateway [ DONE ]
- Getting listening ports (TCP/UDP) [ DONE ]
- Checking promiscuous interfaces [ OK ]
- Checking waiting connections [ OK ]
- Checking status DHCP client [ RUNNING ]
- Checking for ARP monitoring software [ NOT FOUND ]

[+] Printers and Spools
-----
- Checking cups daemon [ RUNNING ]
- Checking CUPS configuration file [ OK ]
  - File permissions [ WARNING ]
- Checking CUPS addresses/sockets [ FOUND ]
- Checking lp daemon [ NOT RUNNING ]

[+] Software: e-mail and messaging
-----

[+] Software: firewalls
-----
- Checking iptables kernel module [ FOUND ]
  - Checking iptables policies of chains [ FOUND ]
  - Checking for empty ruleset [ OK ]
  - Checking for unused rules [ FOUND ]
- Checking host based firewall [ ACTIVE ]

[+] Software: webserver
-----
- Checking Apache (binary /usr/sbin/apache2) [ FOUND ]
  Info: Configuration file found (/etc/apache2/apache2.conf)
  Info: No virtual hosts found
  * Loadable modules [ FOUND (114) ]
    - Found 114 loadable modules
      mod_evasive: anti-DoS/brute force [ NOT FOUND ]
      mod_reqtimeout/mod_qos [ FOUND ]
      ModSecurity: web application firewall [ NOT FOUND ]
- Checking nginx [ NOT FOUND ]

[+] SSH Support
-----
- Checking running SSH daemon [ NOT FOUND ]

[+] SNMP Support
-----
- Checking running SNMP daemon [ NOT FOUND ]

[+] Databases
-----
- MySQL process status [ FOUND ]
- Redis (server) status [ FOUND ]
  - Redis (requirepass configured) [ NOT FOUND ]
  - Redis (rename of CONFIG command) [ NOT FOUND ]
  - Redis (bind on localhost) [ FOUND ]

[+] LDAP Services
-----
- Checking OpenLDAP instance [ NOT FOUND ]

[+] PHP
-----
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- Checking PHP [ FOUND ]
- Checking PHP disabled functions [ FOUND ]
- Checking expose_php option [ ON ]
- Checking enable_dl option [ OFF ]
- Checking allow_url_fopen option [ ON ]
- Checking allow_url_include option [ OFF ]

[+] Squid Support
-----
- Checking running Squid daemon [ NOT FOUND ]

[+] Logging and files
-----
- Checking for a running log daemon [ OK ]
- Checking Syslog-NG status [ NOT FOUND ]
- Checking systemd journal status [ FOUND ]
- Checking Metalog status [ NOT FOUND ]
- Checking RSyslog status [ FOUND ]
- Checking RFC 3195 daemon status [ NOT FOUND ]
- Checking minilogd instances [ NOT FOUND ]
- Checking logrotate presence [ OK ]
- Checking log directories (static list) [ DONE ]
- Checking open log files [ DONE ]
- Checking deleted files in use [ FILES FOUND ]

[+] Insecure services
-----
- Installed inetd package [ NOT FOUND ]
- Installed xinetd package [ OK ]
- xinetd status [ NOT ACTIVE ]
- Installed rsh client package [ OK ]
- Installed rsh server package [ OK ]
- Installed telnet client package [ OK ]
- Installed telnet server package [ NOT FOUND ]

[+] Banners and identification
-----
- /etc/issue [ FOUND ]
- /etc/issue contents [ WEAK ]
- /etc/issue.net [ FOUND ]
- /etc/issue.net contents [ WEAK ]

[+] Scheduled tasks
-----
- Checking crontab and cronjob files [ DONE ]

[+] Accounting
-----
- Checking accounting information [ NOT FOUND ]
- Checking sysstat accounting data [ DISABLED ]
- Checking auditd [ NOT FOUND ]

[+] Time and Synchronization
-----
- NTP daemon found: chronyd [ FOUND ]
- NTP daemon found: systemd (timesyncd) [ FOUND ]
- Checking for a running NTP daemon or client [ OK ]

[+] Cryptography
-----
- Checking for expired SSL certificates [3/9] [ FOUND ]

[+] Virtualization
-----

[+] Containers
-----
- Docker
- Docker daemon [ RUNNING ]
- Docker info output (warnings) [ 1 ]

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- Containers
  - Total containers [ 6 ]
  - Running containers [ 3 ]
  - Unused containers [ 3 ]
- File permissions [ OK ]

[+] Security frameworks
-----
- Checking presence AppArmor [ FOUND ]
  - Checking AppArmor status [ ENABLED ]
- Checking presence SELinux [ NOT FOUND ]
- Checking presence TOMOYO Linux [ NOT FOUND ]
- Checking presence grsecurity [ NOT FOUND ]
- Checking for implemented MAC framework [ OK ]

[+] Software: file integrity
-----
- Checking file integrity tools
- Checking presence integrity tool [ NOT FOUND ]

[+] Software: System tooling
-----
- Checking automation tooling
- Automation tooling [ NOT FOUND ]
- Checking for IDS/IPS tooling [ NONE ]

[+] Software: Malware
-----

[+] File Permissions
-----
- Starting file permissions check

[+] Home directories
-----
- Checking shell history files [ OK ]

[+] Kernel Hardening
-----
- Comparing sysctl key pairs with scan profile
  - fs.protected_hardlinks (exp: 1) [ OK ]
  - fs.protected_symlinks (exp: 1) [ OK ]
  - fs.suid_dumpable (exp: 0) [ DIFFERENT ]
  - kernel.core_uses_pid (exp: 1) [ DIFFERENT ]
  - kernel.ctrl-alt-del (exp: 0) [ OK ]
  - kernel.dmesg_restrict (exp: 1) [ DIFFERENT ]
  - kernel.kptr_restrict (exp: 2) [ DIFFERENT ]
  - kernel.randomize_va_space (exp: 2) [ OK ]
  - kernel.sysrq (exp: 0) [ DIFFERENT ]
  - kernel.yama.ptrace_scope (exp: 1 2 3) [ OK ]
  - net.ipv4.conf.all.accept_redirects (exp: 0) [ OK ]
  - net.ipv4.conf.all.accept_source_route (exp: 0) [ OK ]
  - net.ipv4.conf.all.bootp_relay (exp: 0) [ OK ]
  - net.ipv4.conf.all.forwarding (exp: 0) [ DIFFERENT ]
  - net.ipv4.conf.all.log_martians (exp: 1) [ DIFFERENT ]
  - net.ipv4.conf.all.mc_forwarding (exp: 0) [ OK ]
  - net.ipv4.conf.all.proxy_arp (exp: 0) [ OK ]
  - net.ipv4.conf.all.rp_filter (exp: 1) [ OK ]
  - net.ipv4.conf.all.send_redirects (exp: 0) [ DIFFERENT ]
  - net.ipv4.conf.default.accept_redirects (exp: 0) [ DIFFERENT ]
  - net.ipv4.conf.default.accept_source_route (exp: 0) [ DIFFERENT ]
  - net.ipv4.conf.default.log_martians (exp: 1) [ DIFFERENT ]
  - net.ipv4.icmp_echo_ignore_broadcasts (exp: 1) [ OK ]
  - net.ipv4.icmp_ignore_bogus_error_responses (exp: 1) [ OK ]
  - net.ipv4.tcp_syncookies (exp: 1) [ OK ]
  - net.ipv4.tcp_timestamps (exp: 0 1) [ OK ]
  - net.ipv6.conf.all.accept_redirects (exp: 0) [ DIFFERENT ]
  - net.ipv6.conf.all.accept_source_route (exp: 0) [ OK ]
  - net.ipv6.conf.default.accept_redirects (exp: 0) [ DIFFERENT ]
  - net.ipv6.conf.default.accept_source_route (exp: 0) [ OK ]

```

[+] **Hardening**

- ```
-----
- Installed compiler(s) [ FOUND ]
- Installed malware scanner [ NOT FOUND ]
```

[+] **Custom Tests**

- ```
-----
- Running custom tests... [ NONE ]
```

[+] **Plugins (phase 2)**

```
=====
-[ Lynis 2.7.5 Results ]-
```

**Warnings (1):**

- ```
-----
! Found one or more vulnerable packages. [PKGS-7392]
  https://cisofy.com/lynis/controls/PKGS-7392/
```

**Suggestions (43):**

- ```
-----
* Install libpam-tmpdir to set $TMP and $TMPDIR for PAM sessions [CUST-0280]
  https://your-domain.example.org/controls/CUST-0280/

* Install libpam-usb to enable multi-factor authentication for PAM sessions [CUST-0285]
  https://your-domain.example.org/controls/CUST-0285/

* Install apt-listbugs to display a list of critical bugs prior to each APT
installation. [CUST-0810]
  https://your-domain.example.org/controls/CUST-0810/

* Install apt-listchanges to display any significant changes prior to any upgrade via
APT. [CUST-0811]
  https://your-domain.example.org/controls/CUST-0811/

* Install debian-goodies so that you can run checkrestart after upgrades to determine
which services are using old versions of libraries and need restarting. [CUST-0830]
  https://your-domain.example.org/controls/CUST-0830/

* Install needrestart, alternatively to debian-goodies, so that you can run needrestart
after upgrades to determine which daemons are using old versions of libraries and need
restarting. [CUST-0831]
  https://your-domain.example.org/controls/CUST-0831/

* Install fail2ban to automatically ban hosts that commit multiple authentication
errors. [DEB-0880]
  https://cisofy.com/lynis/controls/DEB-0880/

* Set a password on GRUB bootloader to prevent altering boot configuration (e.g. boot
in single user mode without password) [BOOT-5122]
  https://cisofy.com/lynis/controls/BOOT-5122/

* Install a PAM module for password strength testing like pam_cracklib or pam_passwdqc
[AUTH-9262]
  https://cisofy.com/lynis/controls/AUTH-9262/

* Configure minimum password age in /etc/login.defs [AUTH-9286]
  https://cisofy.com/lynis/controls/AUTH-9286/

* Configure maximum password age in /etc/login.defs [AUTH-9286]
  https://cisofy.com/lynis/controls/AUTH-9286/

* Default umask in /etc/login.defs could be more strict like 027 [AUTH-9328]
  https://cisofy.com/lynis/controls/AUTH-9328/

* To decrease the impact of a full /home file system, place /home on a separate
partition [FILE-6310]
```

```
https://cisofy.com/lynis/controls/FILE-6310/

* To decrease the impact of a full /tmp file system, place /tmp on a separate partition
[FILE-6310]
https://cisofy.com/lynis/controls/FILE-6310/

* To decrease the impact of a full /var file system, place /var on a separate partition
[FILE-6310]
https://cisofy.com/lynis/controls/FILE-6310/

* Disable drivers like USB storage when not used, to prevent unauthorized storage or
data theft [STRG-1840]
https://cisofy.com/lynis/controls/STRG-1840/

* Check DNS configuration for the dns domain name [NAME-4028]
https://cisofy.com/lynis/controls/NAME-4028/

* Purge old/removed packages (76 found) with aptitude purge or dpkg --purge command.
This will cleanup old configuration files, cron jobs and startup scripts. [PKGS-7346]
https://cisofy.com/lynis/controls/PKGS-7346/

* Update your system with apt-get update, apt-get upgrade, apt-get dist-upgrade and/or
unattended-upgrades [PKGS-7392]
https://cisofy.com/lynis/controls/PKGS-7392/

* Install package apt-show-versions for patch management purposes [PKGS-7394]
https://cisofy.com/lynis/controls/PKGS-7394/

* Remove any unneeded kernel packages [PKGS-7410]
- Details : 27 kernels
- Solution : validate dpkg -l output and perform cleanup with apt autoremove
https://cisofy.com/lynis/controls/PKGS-7410/

* Consider running ARP monitoring software (arpwatch, arpon) [NETW-3032]
https://cisofy.com/lynis/controls/NETW-3032/

* Access to CUPS configuration could be more strict. [PRNT-2307]
https://cisofy.com/lynis/controls/PRNT-2307/

* Check iptables rules to see which rules are currently not used [FIRE-4513]
https://cisofy.com/lynis/controls/FIRE-4513/

* Install Apache mod_evasive to guard webserver against DoS/brute force attempts [HTTP-
6640]
https://cisofy.com/lynis/controls/HTTP-6640/

* Install Apache modsecurity to guard webserver against web application attacks [HTTP-
6643]
https://cisofy.com/lynis/controls/HTTP-6643/

* Configure the 'requirepass' setting for Redis [DBS-1884]
- Details : /etc/redis/redis.conf
- Solution : configure 'requirepass' setting in /etc/redis/redis.conf
https://cisofy.com/lynis/controls/DBS-1884/

* Use the 'rename-command CONFIG' setting for Redis [DBS-1886]
- Details : /etc/redis/redis.conf
- Solution : configure 'rename-command CONFIG' in /etc/redis/redis.conf
https://cisofy.com/lynis/controls/DBS-1886/

* Turn off PHP information exposure [PHP-2372]
- Details : expose_php = Off
https://cisofy.com/lynis/controls/PHP-2372/

* Change the allow_url_fopen line to: allow_url_fopen = Off, to disable downloads via
PHP [PHP-2376]
https://cisofy.com/lynis/controls/PHP-2376/

* Check what deleted files are still in use and why. [LOGG-2190]
https://cisofy.com/lynis/controls/LOGG-2190/
```



- \* Add a legal banner to /etc/issue, to warn unauthorized users [BANN-7126]  
<https://cisofy.com/lynis/controls/BANN-7126/>
- \* Add legal banner to /etc/issue.net, to warn unauthorized users [BANN-7130]  
<https://cisofy.com/lynis/controls/BANN-7130/>
- \* Enable process accounting [ACCT-9622]  
<https://cisofy.com/lynis/controls/ACCT-9622/>
- \* Enable sysstat to collect accounting (disabled) [ACCT-9626]  
<https://cisofy.com/lynis/controls/ACCT-9626/>
- \* Enable auditd to collect audit information [ACCT-9628]  
<https://cisofy.com/lynis/controls/ACCT-9628/>
- \* Check available certificates for expiration [CRYP-7902]  
<https://cisofy.com/lynis/controls/CRYP-7902/>
- \* Run 'docker info' to see warnings applicable to Docker daemon [CONT-8104]  
<https://cisofy.com/lynis/controls/CONT-8104/>
- \* Install a file integrity tool to monitor changes to critical and sensitive files [FINT-4350]  
<https://cisofy.com/lynis/controls/FINT-4350/>
- \* Determine if automation tools are present for system management [TOOL-5002]  
<https://cisofy.com/lynis/controls/TOOL-5002/>
- \* One or more sysctl values differ from the scan profile and could be tweaked [KRNL-6000]
  - Solution : Change sysctl value or disable test (skip-test=KRNL-6000:<sysctl-key>)  
<https://cisofy.com/lynis/controls/KRNL-6000/>
- \* Harden compilers like restricting access to root user only [HRDN-7222]  
<https://cisofy.com/lynis/controls/HRDN-7222/>
- \* Harden the system by installing at least one malware scanner, to perform periodic file system scans [HRDN-7230]
  - Solution : Install a tool like rkhunter, chkrootkit, OSSEC  
<https://cisofy.com/lynis/controls/HRDN-7230/>

#### Follow-up:

- Show details of a test (lynis show details TEST-ID)
- Check the logfile for all details (less /var/log/lynis.log)
- Read security controls texts (<https://cisofy.com>)
- Use --upload to upload data to central system (Lynis Enterprise users)

#### Lynis security scan details:

```
Hardening index : 58 [#####          ]
Tests performed : 247
Plugins enabled : 1
```

#### Components:

```
- Firewall           [V]
- Malware scanner    [X]
```

#### Lynis modules:

```
- Compliance status [?]
- Security audit    [V]
- Vulnerability scan [V]
```

#### Files:

```
- Test and debug information : /var/log/lynis.log
- Report data                : /var/log/lynis-report.dat
```

```
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```

## Lynis 2.7.5

Auditing, system hardening, and compliance for UNIX-based systems  
(Linux, macOS, BSD, and others)

2007-2019, CISOfy - <https://cisofy.com/lynis/>  
Enterprise support available (compliance, plugins, interface and tools)

```
=====
```

**[TIP]**: Enhance Lynis audits by adding your settings to custom.prf (see  
[/etc/lynis/default.prf](#) for all settings)