What is new in sudo and syslog-ng – a BSD specific view

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Overview

• /me FreeBSD user since 1994
• sudo
• syslog-ng
• sudo and syslog-ng in FreeBSD ports:
  • installation using pkg
  • compiling from ports
• using syslog-ng in Bastille
sudo
What is sudo?

• Answers, depending on experience:
  • A tool to complicate life
  • A prefix for administrative commands
  • A way to see who did what and other advanced features
What is sudo?

• Sudo allows a system administrator to delegate authority by giving certain users the ability to run some commands as root or another user while providing an audit trail of the commands and their arguments. (https://www.sudo.ws/)
• A lot more than just a prefix
It can get you a sandwich… (by XKCD)

MAKE ME A SANDWICH.

WHAT? MAKE IT YOURSELF

SUDO MAKE ME A SANDWICH.

OKAY.
Defaults

• Changing the default behavior:

  Defaults secure_path="/usr/sbin:/usr/bin:/sbin:/bin"
  Defaults env_keep = "LANG LC_ADDRESS LC_CTYPE"
  Defaults !insults

• Making defaults user/host/etc specific

  Defaults:%wheel insults
Insults

• Fun, but not always politically correct :)
Digest verification

peter ALL = sha244:11925141bb22866afdf257ce7790bd6275feda80b3b241c108b79c88 /usr/bin/passwd

• Cons:
  • Difficult to maintain

• Pros:
  • Modified binaries do not run
  • Additional layer of protection
Session recording

• Recording the terminal
• Playback
• Difficult to modify (not cleartext)
• Saved locally; therefore, easy to delete with unlimited access

• Sudo 1.9: central session recording
LDAP for central management

- Propagates in real-time
- Can’t be modified locally
- Many limitations
Python support

• Extending sudo using Python
• Using the same APIs as C plugins

• API: https://www.sudo.ws/man/sudo_plugin.man.html
  • Python plugin documentation: https://www.sudo.ws/man/sudo_plugin_python.man.html

• No development environment or compilation is needed
IO logs API

- Accessing input and output from user sessions
- Only one Python implementation is allowed

- Python examples:
  - Breaking connection if a given text appears on screen
  - Breaking connection if "rm -fr" is typed in the command line
  - Asking for the reason of the session
import sudo

class MyIOPlugin(sudo.Plugin):
    def log_ttyout(self, buf):
        if "MySecret" in buf:
            sudo.log_info("Don't look at my secret!")
        return sudo.RC_REJECT
IO logs API example: screenshot

```
[czanik@centos7 ~]$ sudo -s
[root@centos7 czanik]# cd /root/
[root@centos7 ~]# ls
DoNotEnter kick.py_v1 policy.py_v1 sng
kick.py policy.py __pycache__ sudo
[root@centos7 ~]# cd DoNotEnter/
[root@centos7 DoNotEnter]# ls
Don't look at my secret!
   Hangup
```

syslog-ng

Logging

Recording events, such as:

Jan 14 11:38:48 linux-0jbu sshd[7716]: Accepted publickey for root from 127.0.0.1 port 48806 ssh2

syslog-ng

Enhanced logging daemon with a focus on portability and high-performance central log collection. Originally developed in C.
Role: collecting data

Collect system and application logs together: contextual data for either side

A wide variety of platform-specific sources:
- /dev/log & co
- Journal, Sun streams

Syslog messages over the network:
- Legacy or RFC5424, UDP/TCP/TLS

Logs or any kind of text data from applications:
- Through files, sockets, pipes, application output, etc.

Python source: Jolly Joker
- HTTP server, Kafka source, etc.
Role: processing

Classifying, normalizing, and structuring logs with built-in parsers:
- CSV-parser, PatternDB, JSON parser, key=value parser

Rewriting messages:
- For example: anonymization

Reformatting messages using templates:
- Destination might need a specific format (ISO date, JSON, etc.)

Enriching data:
- GeoIP
- Additional fields based on message content

Python parser:
- all of the above, enriching logs from databases and also filtering
Role: filtering data

Main uses:
- Discarding surplus logs (not storing debug-level messages)
- Message routing (login events to SIEM)

Many possibilities:
- Based on message content, parameters, or macros
- Using comparisons, wildcards, regular expressions, and functions
- Combining all of these with Boolean operators
Role: storing log messages

syslog-ng, EventLog, Journal, JSON, TXT, CSV

SIEM
Log Analytics
SQL
Hadoop
Elasticsearch
MongoDB
Kafka
sudo logs in Slack
What is common between a BMW i3 and a Kindle?
Where else are sudo and syslog-ng used?

• Sudo: almost all BSD/Linux/UNIX/macOS systems

• Syslog-ng:
  • Available in most Linux distributions, *BSD
  • Most BSD-based appliances: FreeNAS, OPNsense, etc.
  • Synology & QNAP NAS
  • Turris Omnia firewall

• Most likely also in space ☺
Sudo in FreeBSD ports

- security/sudo
- Up-to-date: follows 1.9 line
- Pkg: only basic functionality
Sudo in FreeBSD ports

• You need to compile sudo for:
  • Insults 😊
  • LDAP
  • Python
  • Kerberos
Syslog-ng in FreeBSD ports

• sysutils/syslog-ng
• I am a co-maintainer
• Pkg: only basic functionalities
  • Define basic! 😊
  • Needs extra dependency
Syslog-ng in FreeBSD ports

• These are now all enabled:
  • SSL/TLS, JSON, HTTP (Curl)

• You need to compile syslog-ng from ports for:
  • Python, Java
  • SQL, MongoDB
  • AMQP, Kafka, Redis
  • SMTP, SNMP
  • GeoIP
  • Etc.
Running syslog-ng in Bastille

• https://bastillebsd.org/

• Bastille is an open-source system for automating deployment and management of containerized applications on FreeBSD

• No hard dependencies (uses git for templates)

• There is a syslog-ng template
Running syslog-ng in Bastille

- Install from ports: sysutils/bastille
- Setup Bastille first
- Setup your firewall (pf)
- Create a new jail
- Install syslog-ng using a template
- Configure firewall

Many more possibilities: ZFS, vnet, etc.
Running syslog-ng in Bastille

- cd /usr/ports/sysutils/bastille/
- make install clean
- sysrc bastille_enable="YES"

- sysrc cloned_interfaces+==lo1
- sysrc ifconfig_lo1_name="bastille0"
- service netif cloneup

- sysrc pf_enable="YES"
Running syslog-ng in Bastille: /etc/pf.conf

- `ext_if="em0"
- set block-policy return
- scrub in on $ext_if all fragment reassemble
- set skip on lo

- table <jails> persist
- nat on $ext_if from <jails> to any -> ($ext_if)

- rdr-anchor "rdr/*"
- block in all
- pass out quick modulate state
- antispoof for $ext_if inet
- pass in inet proto tcp from any to any port ssh flags S/SA modulate state
Running syslog-ng in Bastille

- bastille bootstrap 12.2-RELEASE
- bastille bootstrap https://gitlab.com/BastilleBSD-Templates/syslog-ng

- bastille create alcatraz 12.2-RELEASE 10.17.89.50
- bastille template alcatraz BastilleBSD-Templates/syslog-ng
- bastille rdr alcatraz tcp 514 514
Questions?

• Sudo website: https://www.sudo.ws/
• Syslog-ng website: https://syslog-ng.com/
• My email: peter.czanik@oneidentity.com
• Twitter: @Pczanik