



30 MINUTES WITH SYSTEMD

Keith Resar
June 5th, 2018

 @KeithResar

FAMILIARITY WITH **SYSTEMD**?



Time →

ARGUMENTS IN THE CORRECT ORDER? (% OF TIME)



Time →

SURVEY

Have you used systemd?

SURVEY

Have you created custom unit files?

SURVEY

Have you extended system unit files?

SURVEY

Have you used non-service functionality?

AGENDA

systemd Basics Intro

Very brief introduction on systemd 101

Some Fun Examples

Share some interesting use cases I stumbled across yesterday.

Your systemd stories

What have you done with systemd, good bad or otherwise?



SERVICE MANAGEMENT VIA SYSTEMD

Basic service management

```
> service httpd { start | stop | reload | .. }
```

Translates directly to...

```
> systemctl { start | stop | reload | .. } httpd ...
```

BASIC SERVICE UNIT FILE

```
1  [Unit]
2  Description=OpenSSH server daemon
3  Documentation=man:sshd(8) man:sshd_config(5)
4  After=network.target sshd-keygen.target
5  Wants=sshd-keygen.target

6  [Install]
7  WantedBy=multi-user.target

8  [Service]
9  Type=notify
10 EnvironmentFile=-/etc/sysconfig/sshd
11 ExecStart=/usr/sbin/sshd -D $OPTIONS $CRYPTO_POLICY
12 ExecReload=/bin/kill -HUP $MAINPID
13 Restart=on-failure
14 RestartSec=42s
```

UNIT FILE LOCATIONS

Default system location
`/usr/lib/systemd/system`

Local unit files live in
`/etc/systemd/system`

Modifications reside in a drop-in directory
`/etc/systemd/system/$unit.d`

SYSTEMD BY EXAMPLE

SYSTEMD-CGTOP

Control Group	%CPU	Memory	Input/s	Output/s
/	-	391.3M	-	-
/user.slice	0.6	66.4M	-	-
/user.slice/user-1000.slice	0.6	66.4M	-	-
/user.slice/user-1000.slice/session-1.scope	0.6	37.2M	-	-
/system.slice	0.1	248.5M	-	-
/system.slice/httpd.service	0.1	21.1M	-	-
/system.slice/rsyslog.service	0.0	15.0M	-	-
/system.slice/sss.service	0.0	35.5M	-	-
/system.slice/lvm2-lvmetad.service	0.0	536.0K	-	-
/system.slice/rngd.service	0.0	3.2M	-	-

SYSTEMD.RESOURCE-CONTROL

Enable accounting

CPUAccounting, MemoryAccounting, IOAccounting, IPAccounting

Weight 1 - 10,000, quota in % of a single CPU

CPUWeight, StartupCPUWeight, CPUQuota

Best effort optimization and hard limits

MemoryLow, MemoryHigh, MemoryMax, MemorySwapMax

Hard limits applied to provided device and bytes

IOReadBandwidthMax, IOWriteBandwidthMax

DYNAMIC USERS

```
[Service]
```

```
DynamicUser=yes
```

```
# Optional, explicitly note user name
```

```
User=foo
```

SYSTEMD TIMERS

- Jobs can be easily started independently of their timers. This simplifies debugging.
- Each job can be configured to run in a specific environment
- Jobs can be attached to cgroups.
- Jobs can be set up to depend on other systemd units.
- Jobs are logged in the systemd journal for easy debugging.

WHAT'S YOUR SYSTEMD STORY...?

SYSTEMD FOR ADMINISTRATORS BLOG SERIES

- #1: Verifying Bootup
- #2: Which Service Owns Which Processes?
- #3: How Do I Convert A SysV Init Script Into A systemd Service File?
- #4: Killing Services
- #5: The Three Levels of "Off"
- #6: Changing Roots
- #7: The Blame Game
- #8: The New Configuration Files
- #9: On /etc/sysconfig and /etc/default
- #10: Instantiated Services
- #11: Converting inetd Services
- #12: Securing Your Services
- #13: Log and Service Status
- #14: The Self-Explanatory Boot
- #15: Watchdogs
- #16: Getty on Serial Consoles (and Elsewhere)
- #17: Using the Journal
- #18: Managing Resources
- #19: Detecting Virtualization
- #20: Socket Activated Internet Services and OS Containers
- #21: Container Integration

THANKS!

 @KeithResar