°debian

Preseeding
Debian
GNU/Linux

Philip Hands

Why
Automate,
why D-I?

Basic
structure of
D-I

Hands-off
auto-install
system

example
μdebs
  dashslashdash.udeb
  bootstrapwrap.udeb

preseeding
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Future en-
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Questions &
Demo

Preseeding Debian GNU/Linux

for automated installations

Philip Hands

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London, 13 August 2005

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- Boredom
  Who needs to select the local keyboard layout yet again?
- Forgetfulness
  What was the preferred partitioning scheme for these machines?
- Laziness
  People have common requirements, so let's share recipes
- Confidence
  It's really rather wonderful to *know* that you can set up a machine in 15 minutes, and it will be *right*.

Golden Images:

- disk-to-disk cloning
     scales terribly
     new systems inherit all the faults of the old
- rsync/server based
     better than cloning, but still scales badly
     encourages timidity about upgrades
- mondo-rescue
     similar faults to rsync
     rather fragile – sensitive to kernel upgrades

Auto-Installers:

- Kickstart
     not very granular
     not native to Debian GNU/Linux
- FAI – best of the lot, but ...
     needs a sane network, which some people (i.e. my
     clients) fail to provide
     difficult to maintain across multiple sites

Advantages:

- The standard method for Debian installs
- likely to be relatively stable, and well supported
- relatively boot medium agnostic

Disadvantages:

- Fairly restrictive environment
- Painful to debug
- Quite confusing until one is familiar with the structure of d-i, and have a feel for what works and what doesn't

- Wiki
  http://wiki.debian.net/?DebianInstaller
  http://wiki.debian.net/?DebianInstallerPreseed
- Use the source, Luke:
  http://svn.debian.org/wsvn/d-i/
  http://svn.debian.org/wsvn/d-i/trunk/installer/doc/
  http://svn.debian.org/wsvn/d-i/trunk/packages/
- Preseed sample file:
  http://www.debian.org/releases/stable/i386/apcs01.html.en

- the minimum system to get the job done
- partially installed μdebs awaiting postinst
- main-menu: uses Installer-Menu-Item: & dependencies
- anna – Anna's Not Nearly Apt

Further Reading:

http://svn.debian.org/wsvn/d-i/trunk/installer/doc/devel/design.txt?op=file

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- don't need to comply with policy (no docs, no removal scripts)
- menutest (script returns 0 if it should be the menu default)
- isinstallable (return non-zero to be excluded from the menu)
- Installer-Menu-Item: number

Further Reading:

http://svn.debian.org/wsvn/d-i/trunk/installer/doc/devel/modules.txt?op=file

- early/late commands
- preseed/file & preseed/url
- initrd_preseed
- *preseed/include_command abuse*

- language prompts
- host/domain prompts
- partitioning (no LVM/RAID – without kludging)
- debconf-set of non-existent variables
- late reboots

- DEBIAN_DEBUG
- /var/log –> /var/log/debian-installer
    - messages
      (also visible on Alt-<F3>
    - syslog
      (also visible on Alt-<F4>
    - debconf-seed contains the imported preseed settings
- sleep 10000 || true
- chroot into loop mounted initrd
- zapme() – dd zeros over block zero, and reboot

- DEBIAN_DEBUG (doesn't work in **sarge**)
- /var/log –> /var/log/debian-installer
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- modular configuration system built on d-i preseeding
- http://hands.com/d-i/
- http://svn.hands.com/d-i/

Odebian

- Boot medium agnostic
- modular (class based)
- mirrorable (no intelligence required in the server)
- not require constant rebuilding of boot media
  (preferably capable of sitting quietly on official media)
- allow complete or partial auto-installs
  (i.e. prompt for host name only)
- allow exclusion of base packages (i.e. exim4)

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- language/country prompts
  - $\longrightarrow$ tweak the standard initrd (by installing dashslashdash)
- network/host/domain prompts
  - $\longrightarrow$ rely on DHCP for IP address at least

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/lib/debian-installer-startup.d/S35dashslashdash

```sh
#!/bin/sh
set -e

. /usr/share/debconf/confmodule
. /lib/preseed/preseed.sh

# Used by preseed functions.
preseed_fetch () {
  ln -s "$1" $2
}
preseed_relative () {
  if [ -z "${1##/*}" ]; then
    return 1
  else
    return 0
  fi
}

if [ -e /dashslashdash.cfg -a \
    \( -n "$(debconf-get -/-)" -o "$(debconf-get -/url)" \) ]; then

  preseed_location /dashslashdash.cfg

  # let's move the menus around so we can preseed the keyboard
  # over the network  ;->
  sed -ie 's/installer-menu-item: 1[012]/installer-menu-item: 22/' \
    /var/lib/dpkg/status
fi
```

/dashslashdash.cfg

```
# initrd preseed from http://hands.com/d-i/dashslashdash.cfg
# [ look there for an annotated version of this file ]
#
# Copyright (c) 2005 Hands.com Ltd

d-i      debconf/priority        string critical
d-i      netcfg/choose_interface select auto
d-i      netcfg/get_hostname     string unassigned-hostname
d-i      netcfg/get_domain       string unnassigned-domain
d-i      netcfg/wireless_wep     string
local    local/classes           string
local    local/di-url            string
d-i      preseed/include_command string (
   set -x;
   url="$(debconf-get -/url)";
   [ -z "$url" ] && url="http://hands.com/d-i";
   if [ -n "$(debconf-get preseed/url)" ];
   then echo dsd.cfg;
   else
      echo "x preseed/url x $url/dsd.cfg" > /tmp/preseed-url.set;
      debconf-set-selections /tmp/preseed-url.set;
   fi ) 2> /var/log/preseed-1_include_command.debug
```

the above `preseed/include_command` has been reformatted
for readability — in the actual file it is all on one line

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- Adds ability to include or exclude packages into the list of packages installed by base-installer.
- Is able to be downloaded in the preseed/early_command so doesn't need patching of the initrd.gz

bootstrapwrap.postinst

```
#! /bin/sh
set -e

mv /usr/sbin/run-deboostrap /usr/sbin/run-deboostrap.real
ln -s /usr/sbin/bootstrapwraper /usr/sbin/run-deboostrap
exit 0
```

/usr/bin/bootstrapwrap

```sh
#!/bin/sh

log() {
    logger -t bootstrapwrap "$@"
}

# check that --in/exclude is not already set
for arg in "$@" ; do
  if expr "$arg" : "--[ie][nx]clude" > /dev/null ; then
    log "error: existing base in/ex-clude option set before bootstrapwrapper ($arg)"
    exit 1
  fi
done

if [ -s /base_include ]; then
        INCLUDES="--include=$(grep -v '^#' /base_include | tr '\n' , | sed 's/,$//')"
fi

if [ -s /base_exclude ]; then
        EXCLUDES="--exclude=$(grep -v '^#' /base_exclude | tr '\n' , | sed 's/,$//')"
fi

/usr/sbin/run-debootstrap.real ${INCLUDES} ${EXCLUDES} "$@"
```

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/lib/preseed/preseed.sh

```
...
# Note: Needs a preseed_fetch function or command not provided by this
# file, as well as preseed_relative
preseed_location () {
        ...
        if ! preseed_fetch $location $tmp; then
                error retrieve_error "$location"
        fi

        db_set preseed/include ""
        db_set preseed/include_command ""
        if ! debconf-set-selections $tmp; then
                error load_error "$location"
        fi
        ...
        db_get preseed/include
        local include="$RET"
        db_get preseed/include_command
        [ -n "$RET" ] && include="$include $(eval $RET)" || true

        for location in $include; do
                # Support relative paths, just use path of last file.
                if preseed_relative "$location"; then
                        # This works for urls too.
                        location="$(dirname $last_location)/$location"
                fi
                if [ -n "$location" ]; then
                        preseed_location "$location"
                fi
        done
}
```

Debian-Installer:

- preseed/substitute & preseed/substitute_command
- preseed/auxiliary & preseed/auxiliary_command ?
- optional includes (with `<filename>`? perhaps)

dashslashdash.deb:

- include it on official Debian media (hopefully)
- dashslashdash to search for local host (i.e.
  `d-i-preseed-host.example.com`)
- pcbackup-restore.udeb

This talk can be found at

http://hands.com/~phil/talks/

Philip Hands <phil@hands.com>