Oracle Solaris 11 Administrator's Cheat Sheet

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Installation and Deployment Administration

Automated Installation

Automated Installer (AI) is the new network based multi-client provisioning system on Oracle Solaris 11. AI provides hands-free installation of both SPARC and x86 systems by using an installation service that installs systems by leveraging software package repositories on the network.

Create an install service from a downloaded ISO file, specifying x86 based DHCP client starting at address 192.168.1.210 with a total count of 10 addresses:

```
# installadm create-service -n s11x86 -i 192.168.1.210 -c 10 -s
/path/to/solaris-11-1111-ai-x86.iso
```

List all enabled services:

```
# installadm list
```

List any installation manifests associated with the install services:

```
# installadm list -m
```

Export the default installation manifest associated with the `s11x86` service:

```
# installadm export -n s11x86 -m orig_default > manifest.xml
```

Import a manifest to be associated with the `s11x86` service:

```
# installadm update-manifest -n s11x86 -m orig_default \
-f manifest.xml
```

Apply a criteria that all clients must have 4096MB memory or greater to the manifest `s11manifest` of `s11x86` service:

```
# installadm set-criteria -m s11manifest -n s11x86 \
-a MEM="4096-unbounded"
```

AI integration with ISC DHCP server configured via:

```
/etc/inet/dhcpd4.conf
```

Zones can be installed thru the AI manifest, when system is installed (method 1)

```
<configuration type="zone" name="zone1"
source="http://xyz/zone1/config.txt" />
```

Zones can be installed thru the AI manifest, when system is installed (method 2)

```
<configuration type="zone" name="zone1"
source="file:///net/server/zone2/config.txt" />
```

Specify an AI manifest for the Zone installation, to apply to either zone1 or zone2

```
# installadm create-manifest —n s11 —f /tmp/zmanifest.xml —c
zonename="zone1 zone2"
```

Define a system configuration profile for zone1

```
# installadm create-profile —n s11 —f /tmp/zprofile1.xml —c
zonename="zone1"
```

Install a Zone after system has been built, while leveraging AI manifest and profile

```
# zoneadm —z zone2 install —m /tmp/my_zone_AI_manifest —c
/tmp/my_zone_SC_profile
```

Installation Troubleshooting

On the AI client, the "install_log" filename contains installation debug information, but additional debug flags are available:

For Open Boot Prom (OBP) on SPARC via install_debug boot argument:

```
ok> boot net:dhcp — install install_debug
```

For x86 via GRUB, to kernel line boot entry add the following:

```
install_debug=enable
```

Default root password on AI clients during installation is:

```
solaris
```

Installation log file during installation

```
/system/volatile/install_log
```

AI client manifest downloaded from the AI server during installation

```
/system/volatile/ai.xml
```

AI client derived manifest (if a derived manifest script is used)

```
/system/volatile/manifest.xml
```

System configuration profiles downloaded from the AI server during installation

```
/system/volatile/profile/*
```

List of AI services located

```
/system/volatile/service_list
```

AI client SMF service log for manifest/profile locator, during installation

```
/var/svc/log/application-manifest-locator:default.log
```

AI client SMF service log for Automated Installer installation service

```
/var/svc/log/application-auto-installer:default.log
```

AI server log file for access requests from AI clients

```
/var/ai/image-server/logs/access_log
```

AI server log file for errors encountered from AI clients

```
/var/ai/image-server/logs/error_log
```

AI server SMF service log

```
/var/svc/log/system-install-server:default.log
```

AI server boot configuration files

```
/etc/netboot
```

Specify location of AI imagepath, default is /export/auto_install/<service_name>

```
# installadm create-service —d
```

Boot without starting an installation on SPARC

```
ok> boot net:dhcp
```

Boot without starting an installation on x86

```
From GRUB menu, select first entry (Text)
```

Manual pages:

```
installadm(1M), ai_manifest(4), aimanifest(1M), sysconfig(1M)
```

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System Configuration Profiles

System Configuration Profiles are used to provide system configuration information profiles, as used by Automated Installer.

Interactively create a system configuration profile and save it to a file, to be subsequently used for deployments
`# sysconfig create-profile -o sc-profile.xml`
Specify a system configuration profile to use when installing a system with a specific MAC criteria. The name of the profile will be same as filename, unless optionally specified with "-p" switch.
`# installadm create-profile –n s11service –f sc_profile.xml –c` `MAC=00:11:22:33:44:55`
List what system configuration profiles are associated with a service, and for which criteria (if any)
`# installadm list –n s11service –p`
List all non-default system configuration profiles associated with any of the install services:
`# installadm list –p`
Validate a system configuration profile against the default x86 install service:
`# installadm validate -n default-i386 -P profile.xml`
Associate a system configuration profile with the default x86 install service and give it a name `sc-profile`:
`# installadm create-profile -n default-i386 -f profile.xml \` `-p sc-profile`
Default system configuration profile and AI manifest used for zone installs are:
`/usr/share/auto_install/sc_profile/enable_sci.xml` `/usr/share/auto_install/manifest/zone_default.xml`

Derived Manifests

Install services are created with default manifest, but customized manifests or derived manifests scripts can be added to an install service by using create-manifest subcommand.

Change the default-sparc service to be an alias of yourservice service:
`# installadm set-service –o aliasof=yourservice default-sparc`
Specify a service's pre-existing manifest or script to be the new default:
`# installadm set-service –o default-manifest=<new-manifest>`
Export to the screen one or more manifests and/or scripts:
`# installadm export –m`
Install a new version of a manifest or script from an external file, while leaving intact all criteria associated with that manifest or script:
`# installadm update-manifest`
Add a new manifest, newman, to i386svc service, and make it default manifest:
`# installadm create-manifest –d /path/to/newmanfile.xml –n` `newman –n i386svc`

Migrating from Oracle Solaris 10 – Jumpstart to Automated Installer

Migration of Oracle Solaris 10 (and earlier) Jumpstart infrastructure can be aided with js2ai tool.

Best-effort translation; produces XML syntax for, and aids in conversion of:
Jumpstart rules → AI criteria,
Jumpstart profiles → AI manifests,
sysidcfg files → System configuration profiles
If there is a Jumpstart keyword that has no equivalent in AI, the user can manually edit the AI manifest to leverage AI.

Convert a sysidcfg file in the current directory to a system configuration profile named "sc_profile.xml":
`# js2ai -s`
Convert an entire Jumpstart directory under /export/jumpstart
`# js2ai –r –d /export/jumpstart`
Convert a rules file and associated profiles to AI criteria and AI manifests
`# js2ai –r`
Convert a profile to AI manifests and save in AI_<$profile> subdirectory
`# js2ai –p profile`

Boot Environments

Boot Environments are individual bootable instances of the operating system that take advantage of the Oracle Solaris ZFS filesystem snapshot and clone capability. During a system update, new boot environments are created so that system software updates can be applied in a safe environment. Should anything go awry, administrators can boot back into an older boot environment. Boot environments have low overhead and can be quickly created giving administrators an ideal best practice for any system maintenance work.

Create a boot environment:
`# beadm create solaris-05032012`
Activate a boot environment:
`# beadm activate solaris-05032012`
Delete a boot environment:
`# beadm destroy solaris-05032012`
Show boot environments from SPARC boot PROM:
`ok> boot -L`
Boot into a boot environment from SPARC boot PROM:
`ok> boot -Z rpool/ROOT/solaris-05032012`

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Contact Us

This Oracle Solaris 11 Administrator's Cheat Sheet was written by Isaac Rozenfeld, Principle Product Manager at Oracle. Isaac writes a blog that can be found at http://blogs.oracle.com/unixman

For more information about Oracle Solaris 11, visit oracle.com/solaris or call +1.800.ORACLE1 to speak to an Oracle representative. Last updated: May 11, 2012.

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