SERIAL NUMBER IN EEPROM

SNEEP TECHNICAL BRIEF

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Chassis Serial Number : CSN

- Service entitlement

- Asset tracking / Life cycle management

- Preemptive Identification of equipment affected by FIN/FCO, Alert

- Index into Sun databases
  - > Service History
  - > Contract
  - > Manufacturing

Current difficulties with CSN

- Original Paperwork for system
  - > Missing or Inaccessible
- Physical Tag On equipment
  - > Inaccessible to Remote Administrators, SSE
- Account Manager's spreadsheet(s)
  - > Hard to locate, update, share, verify
- Explorer and CST configuration
  - > Duplicated manual entries
  - > Easily lost in upgrade, flash, NC3 install

Ideal Serial Number Solution

- Like "hostid" - built into the system
  - > **Readily available to admin and software**
  - > Firm connection to hardware
  - > Persistent across upgrade, rebuild, redeploy
  - > Impervious to restoration / installation of configuration files from another system

- FRU ID is close, but ...
  - > Very limited platform availability
  - > Complicated for users to access

Sneep :
Serial Number in EEPROM

- Simple   : Easy to set up and use
- Available : All Solaris platforms
- Persistent : Set once, stays forever
- Consistent: Standard for storage & access
- Flexible   : Save asset and other info
- Efficient   : Reduces tool maintenance
- Traceable : Supports basic auditing

Sneep: Simple

- Initial request for Chassis Serial Number
  $ /opt/SUNWsneep/bin/sneep
  unknown

- Set Chassis Serial Number to "XYZ123"
  $ /opt/SUNWsneep/bin/sneep -s xyz123
  $

- Retrieve Chassis Serial Number
  $ /opt/SUNWsneep/bin/sneep
  XYZ123

Sneep: Available

- Built on standard Solaris commands
- All Solaris SPARC and x86 platforms
  - > Requires no new hardware / software features
  - > Works on anything that runs Solaris,
    even Zones or very old equipment
- Easy for Remote Administrators to use
- Easy to use in scripts
- Data available even at OBP level

Sneep: Persistent

- Stored in system EEPROM
  - > Stays with machine through redeployments
  - > Safe from OS upgrades, Jumpstart, FLASH
  - > OBP patches preserve EEPROM contents
  - > Data remains if sneep is removed from system
- Backed up in file system
  - > /etc/default/SUNWsneep
  - > Automatic recovery if EEPROM reset or replaced
- Backed up in explorer output files
  - > eeprom.out and etc/default/SUNWsneep

Sneep: Consistent
Standard for Storage

- Representation in EEPROM nvramrc
  - > FORTH "print" command (.")

    ." ChassisSerialNumber XYZ123 " cr

- Alpha Characters stored in upper case
- No quotes or control characters

Sneep: Consistent

Standard for Access

- "sneep" command
  - > Simple output like "hostid" by default
  - > Same command on all Solaris systems
  - > Hides details of eeprom, FRUID, etc., even as these change and evolve for new platforms

- Searches multiple sources for CSN
  - > EEPROM, backup, explorer, CST, FRUID, etc
  - > Returns best data, or "unknown"
  - > Search sequence can be controlled

Sneep: Flexible

- Store other information in EEPROM
  - > Arbitrary "tag" and value
  - > Prints at boot time if use-nvramrc?=true

    ```
    # sneep -t ASSETTAG -s Asset1234
    # sneep -t ServiceContract -s NK004321
    # sneep -t CLUSTERNOTE \
        -s "Clustered with nodeB: MUST use
                                    SCSI ID 4"
    ```

- However-
  CST User Data has over 50 fields
  for most common data items: see "uded"

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Sneep: Efficient

- Can obtain initial CSN from explorer, CST
  - > No need to duplicate effort if you have good data already

- Updates serial in explorer defaults file

- Updates serial in CST user_data file

- Automatic data recovery
  - > explorer and CST configurations are prone to being lost or overwritten in system updates and redeployment procedures

Sneep: Traceable

- Changes must be recorded
  - > Sarbanes-Oxley (SOX) requirement in USA
- Changes are logged to syslog
  - > Logs all eeprom changes
  - > Logs CST and explorer configuration changes
  - > Logs when safety restrictions are overridden
  - > Logs during system boot if eeprom and other sources do not agree on Chassis Serial
  - > Syslog facility and priority can be controlled

Sneep: explorer Integration

- Sneep updates Serial in explorer config
  - > Automatically maintains EXP_SERIAL_<hostid>
- All settings available in eeprom.out
- Explorer includes sneep backup file
- Sneep provides explorer plug-in
  - > Creates standard location for serial number
- explorer RFE to gather sneep data
  - > Future explorer to include sneep support

Sneep: CST Integration

- Sneep updates CST user_data
  - > Maintains "Serial # of System" automatically in local CST user_data file

- Sends app_event when serial changes
  - > Provides record of configuration changes
  - > Propagates Serial Change event to Sun

- Works with "uded" User Data Editor
  - > Converts Serial Change event to true user_data change on CST Middleware
  - > Propagates "Serial # of System" to Sun

Sneep: Limitations

- Serial must be entered manually
  - > Sneep will find it if this has already been done
- nvramrc has finite size
  - > Sneep enforces safe limits based on platform
  - > Smallest eeprom will easily hold 10-20 tags
- x86 EEPROM is simulated for Solaris
  - > eeprom is a file on disk
    - > Not quite as safe as true eeprom on SPARC
  - > eeprom nvramrc holds only one entry
    - > Reserved for Chassis Serial Number
    - > Other sneep tags are in backup file only

Sneep:
Installation and Configuration

1. Install the package

   pkgadd -n -d <dir> SUNWsneep

   No user interaction required

2. Use sneep to find any existing serial

   Report serial from CST, explorer, other sources

   /opt/SUNWsneep/bin/sneep -a

3. Set serial using sneep

   Update eeprom, backup, explorer, CST, etc.

   /opt/SUNWsneep/bin/sneep -s ABC123

   (or) /opt/SUNWsneep/bin/sneep -Tv -d ' '

Sneep: Removal

- pkgrm -n SUNWsneep
  - > No user interaction required
  - > Serial and other data remains in eeprom
- Data continues to provide value
  - > Included in explorer output
  - > Visible with eeprom command and in OBP
- Immediately available if reinstalled
  - > Finds previous sneep data

Sneep: Maintenance

- Virtually no maintenance for CSN
  - > CSN remains firmly attached to hardware
  - > Automatically recovers eeprom from backup file if eeprom is reset to defaults or replaced
  - > Automatically restores explorer/CST serial from eeprom if inconsistent

- SUNWsneep updates
  - > Non-interactive pkgrm/pkgadd
  - > No configuration :
    sneep data already in EEPROM
    and backup file

Sneep: Support

- No Contractual support provided
  - > Do not call Customer Care Center for sneep
  - > This may change, but will take Time
- *sneep-support@sun.com*
  - > Report issues, RFEs directly to the developer
- *sneep-announce-ext@sun.com*
  - > Get announcements of news, releases, issues
  - > Email sneep-support to be added
- Things to remember:
  - > sneep is a script and not critical to operations
  - > sneep can be removed from the system

Sneep: Downloads and aliases

- **Public Sneep Resources**
  - > Sun Download Center   www.sun.com/downloads
    - > Downloads A-Z   ->   S -> Sneep
  - > sneep-support@sun.com
  - > sneep-announce-ext@sun.com

    (To join sneep-announce-ext, send request to sneep-support@sun.com , or have Sun contact add you into Sun internal NetAdmin tool)

- **Sun Internal Sneep Download**
  - > webhome.east/mshon/solutions/sneep

- **UDED** (CST **U**ser **D**ata **ED**itor)
  - > webhome.central/fca-eng/solutions/uded

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