Abstract:	This document is a template for a midrange system runbook.
Organization:	Meriden Midrange
Quality Plan Number:	N/A
Author/Quality Manager:	_____
Approved By:	_____
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[Sample]

HPL3 UNIX SYSTEM RUNBOOK

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[Sample]

1. System Administration

1.1. Application Description

This is the SFA Intranet Development Server. It contains 3 separate instances on it. These instances are for development, testing and staging. The directories are '/sfa/dev', '/sfa/tst', and '/sfa/stg', respectively. All modifications that are move to the production instance must be approved by the functional owner and the webmaster prior to migration. The production version of the application can be found on HPL4. Currently, this application consists of static web pages, and **does not** use a database.

1.2. Hardware Configuration:

HP "L" Class Server containing the following:

```
root@hpl3:/root # ioscan -fnk
Class    I    H/W Path      Driver   S/W State      H/W Type      Description
==================================================================
root     0                  root     CLAIMED        BUS_NEXUS
ioa      0    0             sba      CLAIMED        BUS_NEXUS     System Bus Adapter (582)
ba       0    0/0           lba      CLAIMED        BUS_NEXUS     Local PCI Bus Adapter (782)
lan      0    0/0/0/0       btlan3   CLAIMED        INTERFACE     PCI Ethernet (10110019)
ext_bus  0    0/0/1/0       c720     CLAIMED        INTERFACE     Ultra2 Wide SCSI Dual
Port
target   0    0/0/1/0.3     tgt      CLAIMED        DEVICE
tape     0    0/0/1/0.3.0   stape    CLAIMED        DEVICE        HP C1537A
                            /dev/rmt/0m      /dev/rmt/c0t3d0BEST      /dev/rmt/c0t3d0DDS
                            /dev/rmt/0mb     /dev/rmt/c0t3d0BESTb     /dev/rmt/c0t3d0DDSb
                            /dev/rmt/0mn     /dev/rmt/c0t3d0BESTn     /dev/rmt/c0t3d0DDSn
                            /dev/rmt/0mnb    /dev/rmt/c0t3d0BESTnb    /dev/rmt/c0t3d0DDSnb
target   1    0/0/1/0.7     tgt      CLAIMED        DEVICE
ctl      0    0/0/1/0.7.0   sctl     CLAIMED        DEVICE        Initiator
                            /dev/rscsi/c0t7d0
ext_bus  1    0/0/1/1       c720     CLAIMED        INTERFACE     Ultra2 Wide SCSI Dual
Port
target   2    0/0/1/1.0     tgt      CLAIMED        DEVICE
disk     0    0/0/1/1.0.0   sdisk    CLAIMED        DEVICE        SEAGATE ST39103LC
                            /dev/dsk/c1t0d0   /dev/rdsk/c1t0d0
target   3    0/0/1/1.2     tgt      CLAIMED        DEVICE
disk     1    0/0/1/1.2.0   sdisk    CLAIMED        DEVICE        SEAGATE ST39103LC
                            /dev/dsk/c1t2d0   /dev/rdsk/c1t2d0
target   4    0/0/1/1.7     tgt      CLAIMED        DEVICE
ctl      1    0/0/1/1.7.0   sctl     CLAIMED        DEVICE        Initiator
                            /dev/rscsi/c1t7d0
ext_bus  2    0/0/2/0       c720     CLAIMED        INTERFACE     Ultra Wide SCSI
target   5    0/0/2/0.0     tgt      CLAIMED        DEVICE
disk     2    0/0/2/0.0.0   sdisk    CLAIMED        DEVICE        SEAGATE ST39103LC
                            /dev/dsk/c2t0d0   /dev/rdsk/c2t0d0
target   6    0/0/2/0.2     tgt      CLAIMED        DEVICE
disk     3    0/0/2/0.2.0   sdisk    CLAIMED        DEVICE        SEAGATE ST39103LC
                            /dev/dsk/c2t2d0   /dev/rdsk/c2t2d0
target   7    0/0/2/0.7     tgt      CLAIMED        DEVICE
ctl      2    0/0/2/0.7.0   sctl     CLAIMED        DEVICE        Initiator
                            /dev/rscsi/c2t7d0
ext_bus  3    0/0/2/1       c720     CLAIMED        INTERFACE     Ultra Wide SCSI
target   8    0/0/2/1.2     tgt      CLAIMED        DEVICE
```

[Sample]

disk	4	0/0/2/1.2.0	sdisk	CLAIMED	DEVICE	HP DVD-ROM 6x/32x
			/dev/dsk/c3t2d0	/dev/rdsk/c3t2d0		
target	9	0/0/2/1.7	tgt	CLAIMED	DEVICE	

[Sample]

Hardware Configuration (Continued)

```
ctl        3        0/0/2/1.7.0        sctl      CLAIMED        DEVICE          Initiator
                                       /dev/rscsi/c3t7d0
tty        0        0/0/4/0            asio0     CLAIMED        INTERFACE       PCI Serial (103c1048)
                                       /dev/GSPdiag1 /dev/cul0p2    /dev/mux0  /dev/tty0p1  /dev/ttyd0p2
                                       /dev/cua0p2     /dev/diag/mux0  /dev/tty0p0  /dev/tty0p2
tty        1        0/0/5/0            asio0     CLAIMED        INTERFACE       PCI Serial (103c1048)
                                       /dev/GSPdiag2  /dev/diag/mux1  /dev/mux1      /dev/tty1p1
ba         1        0/1                lba       CLAIMED    BUS_NEXUS    Local PCI Bus Adapter (782)
ba         2        0/2                lba       CLAIMED    BUS_NEXUS    Local PCI Bus Adapter (782)
ba         3        0/3                lba       CLAIMED    BUS_NEXUS    Local PCI Bus Adapter (782)
ba         4        0/4                lba       CLAIMED    BUS_NEXUS    Local PCI Bus Adapter (782)
ba         5        0/4/0/0            PCItoPCI  CLAIMED    BUS_NEXUS    PCItoPCI Bridge
lan        1        0/4/0/0/4/0        btlan     CLAIMED    INTERFACE    PCI Ethernet (10110009)
lan        2        0/4/0/0/5/0        btlan     CLAIMED    INTERFACE    PCI Ethernet (10110009)
lan        3        0/4/0/0/6/0        btlan     CLAIMED    INTERFACE    PCI Ethernet (10110009)
lan        4        0/4/0/0/7/0        btlan     CLAIMED    INTERFACE    PCI Ethernet (10110009)
ba         6        0/5                lba       CLAIMED    BUS_NEXUS    Local PCI Bus Adapter (782)
ba         7        0/6                lba       CLAIMED    BUS_NEXUS    Local PCI Bus Adapter (782)
ba         8        0/7                lba       CLAIMED    BUS_NEXUS    Local PCI Bus Adapter (782)
ba         9        0/7/0/0            PCItoPCI  CLAIMED    BUS_NEXUS    PCItoPCI Bridge
lan        5        0/7/0/0/4/0        btlan     CLAIMED        INTERFACE    PCI Ethernet (10110009)
lan        6        0/7/0/0/5/0        btlan     CLAIMED        INTERFACE    PCI Ethernet (10110009)
lan        7        0/7/0/0/6/0        btlan     CLAIMED        INTERFACE    PCI Ethernet (10110009)
lan        8        0/7/0/0/7/0        btlan     CLAIMED        INTERFACE    PCI Ethernet (10110009)
memory     0        8                  memory    CLAIMED        MEMORY          Memory
processor  0        160                processor  CLAIMED    PROCESSOR       Processor
processor  1        162                processor  CLAIMED    PROCESSOR       Processor
processor  2        164                processor  CLAIMED    PROCESSOR       Processor
processor  3        166                processor  CLAIMED    PROCESSOR       Processor
```

1.3. Software Configuration:

```
root@hpl3:/root # uname -a
HP-UX hpl3 B.11.00 U 9000/800 108901507 unlimited-user license

root@hpl3:/root # swlist
# Initializing...
# Contacting target "hpl3"...
#
# Target:  hpl3:/
#
#
# Bundle(s):
#
A5506A                B.11.00.01      PCI 4 PORT 100BASE-T/9000
B2491BA               B.11.00         MirrorDisk/UX
B3701AA               C.02.30.000     HP GlancePlus/UX Pak for s800 11.00
B3835BA               C.01.06         HP Process Resource Manager
B3901BA               B.11.01.07      HP C/ANSI C Developer's Bundle for HP-UX 11.00 (S800)
B3913DB               B.11.01.06      HP aC++ Compiler (S800)
B3919EA_2A5           B.11.00         Special Edition HP-UX Unlimited-User Lic
B3929BA               B.11.00         HP OnLineJFS (Advanced VxFS)
B3935BA               A.11.08         MC / Service Guard
```

[Sample]

1.3 Software Configuration (Continued):

```
B5013AA          B.11.00.25      HP PerfView Analyzer for s800 11.00
B5456CA          C.01.17.00      HP-UX Development Kit for Java*
B5458DA          C.01.17.00      HP-UX Runtime Environment for Java*
B5725AA          B.2.2.157       HP-UX Installation Utilities (Ignite-UX)
HPUXEng64RT      B.11.00         English HP-UX 64-bit Runtime Environment
Ignite-UX-11-00  B.2.2.157       HP-UX Installation Utilities for Installing 11.00 Systems
J1607CA          B.02.00.07      Netscape Fasttrack Server
J3641DA          B.02.00.07      Netscape Enterprise Server
OnlineDiag       B.11.00.10.12   HPUX 11.0 Support Tools Bundle
XSWGR1100        B.11.00.46      HP-UX General Release Patches, October 1999
XSWHWCR1100      B.11.00.46      Hardware Enablement and Critical Patches for HP-UX 11.0
                                 (September 1999)
#
# Product(s) not contained in a Bundle:
#
OMNIBACK-II      A.03.10         HP OpenView OmniBack II
PHCO_19986       1.0             Year 2000 cumulative cron/at/crontab patch
```

1.4. Network Configuration:

This SFA L Class Intranet Development server has two active Lan's:

```
Lan0:
4.20.14.56    hpl3.ed.gov hpl3    #HP-L class Server3

lan1:
4.20.14.141     sfaintratst     #Virtual IP of HPL3 lan1
Virtual IP's of lan1:
4.20.14.142     sfaintrastg     #Virtual IP of HPL3 lan1
4.20.14.143     sfaintradev     #Virtual IP of HPL3 lan1

root@hpl3:/root # ioscan -fnkC lan
Class    I  H/W Path    Driver   S/W State   H/W Type    Description
==============================================================
lan      0  0/0/0/0      btlan3  CLAIMED    INTERFACE   PCI Ethernet (10110019)
lan      1  0/4/0/0/4/0  btlan   CLAIMED    INTERFACE   PCI Ethernet (10110009)
lan      2  0/4/0/0/5/0  btlan   CLAIMED    INTERFACE   PCI Ethernet (10110009)
lan      3  0/4/0/0/6/0  btlan   CLAIMED    INTERFACE   PCI Ethernet (10110009)
lan      4  0/4/0/0/7/0  btlan   CLAIMED    INTERFACE   PCI Ethernet (10110009)
lan      5  0/7/0/0/4/0  btlan   CLAIMED    INTERFACE   PCI Ethernet (10110009)
lan      6  0/7/0/0/5/0  btlan   CLAIMED    INTERFACE   PCI Ethernet (10110009)
lan      7  0/7/0/0/6/0  btlan   CLAIMED    INTERFACE   PCI Ethernet (10110009)
lan      8  0/7/0/0/7/0  btlan   CLAIMED    INTERFACE   PCI Ethernet (10110009)

root@hpl3:/root # lanscan
Hardware Station        Crd Hdw   Net-Interface  NM  MAC       HP-DLPI DLPI
Path     Address                  In#      State     NamePPA    ID  Type     Support Mjr#
0/0/0/0  0x001083F84B63 0         UP       lan0 snap0    1   ETHER    Yes    119
0/4/0/0/4/0 0x001083188BC4 1      UP       lan1 snap1    2   ETHER    Yes    119
0/4/0/0/5/0 0x001083188BCF 2      UP       lan2 snap2    3   ETHER    Yes    119
0/4/0/0/6/0 0x001083189BA9 3      UP       lan3 snap3    4   ETHER    Yes    119
0/4/0/0/7/0 0x00108318DBCA 4      UP       lan4 snap4    5   ETHER    Yes    119
0/7/0/0/4/0 0x001083188BFB 5      UP       lan5 snap5    6   ETHER    Yes    119
```

[Sample]

1.4 Network Configuration (Continued) lanscan:

```
0/7/0/0/5/0 0x001083188BD4 6    UP    lan6 snap6   7  ETHER   Yes   119
0/7/0/0/6/0 0x00108318DB06 7    UP    lan7 snap7   8  ETHER   Yes   119
0/7/0/0/7/0 0x00108318DBED 8    UP    lan8 snap8   9  ETHER   Yes   119
```

2. Operations Information

2.1. Support Coverages

2.1.1. System Administration Support

- Primary UNIX System Administrator:
  Mike Giordano
  Work: 203.317.4824
  Home: 203.933.7707
  Pager: Text 1.800.272.2958 PIN: 545-1709
- Backup UNIX System Administrator:
  Paul Izzo
  Work: 203.317.2175
  Home: 203.250.9275
  Pager: Text 1.800.272.2958 PIN: 598-1966

2.1.2. Hardware/Software Support

- Hewlett Packard
  Support Number: 1.800.633.3600
  System Handle: CSCPEPS

2.1.3. Software Support/Intranet Application and Webserver

- Willard Handley, Dept of Ed : 202-260-0316

2.2. Serial Numbers/Asset Numbers

- HPL3 Serial Number: USS3947008
- HPL3 CSC Asset Tag Number: AA189562

2.3. System Schedules

2.3.1. Backup Schedules

- Daily Full Backup start at 18:00 or 6:00pm
- Make recovery backup is scheduled on Monday's at 14:00 or 2:00pm
- Fbackup is scheduled on Tuesday's at 14:00 or 2:00pm
- Sunday Full Backup starts at 01:15 or 1:15am

2.3.2. Maintenance Schedules

- Starts on Sunday morning at 00:00 through 05:00; May be extended depending upon circumstances

2.3.3. Reboot Schedules

- Occurs Every Sunday at 00:00

2.4. System Startup/Shutdown Procedures: See the Next Page

[Sample]

System Startup/Shutdown Procedures (Continued):

2.4.1. Rebooting the system
- Log in as root
- Type The Following Commands:
  sync
  sync
  shutdown –r –y now

2.4.2. Shutting/Starting the application
- To shutdown the web server: as root, execute the command:
  /sbin/init.d/ns-enterprise36 stop
- To startup the web server: as root, execute the command:
  /sbin/init.d/ns-enterprise36 start

2.4.3. Powering down the system
- As root, execute the command: shutdown –h -y now
- Once the system has halted, turn the key to the upright (off) position

2.4.4. Powering up the system
- If the system is down, turn the key to the right, maintenance mode

2.5. System Backup Procedures

2.5.1. Daily Backup Procedures
- HP V Class is the Cell Server that controls the Cell Agent on HPL3
- The backup is called hpl3-SFA_dev_intranet

2.5.2. Weekly Backup Procedures
- Same as Daily

2.5.3. Monthly Backup Procedures
- Same as Daily

2.5.4. Database Backup Procedures
- None, This system has no databases

2.6. Disaster Recovery Procedures

2.6.1. Tape archiving (off-site) procedures
- Review tape schedules – note to me

2.6.2. Disaster recovery plan

2.7. Periodic/Hourly Checklist Procedures
- N/A – System is monitored by TNG

2.8. Operating System Recovery Procedures:
- The primary root physical volume is mirrored
  1. The disk status is monitored through TNG and Predictive
  2. If one of the disks go stale in any way, they will have to be replaced
  3. CSC will put a change control in for approval by the vendor
  4. CSC will then schedule down time to change the disks
  5. CSC will then schedule HP to come in and replace the disk

Operating System Recovery Procedures (Continued):

- If the primary root physical and mirrored physical disk go stale for any reason TNG and Predictive will monitor this and send notice, at this point the server will be down and not accessible to anyone.
    1. Operations will notify the primary UNIX Administrator and/or secondary UNIX Administrator
    2. Operations will then contact HP and bring them on site ASAP with new disks then notify the customer, i.e. Webmaster, and all appropriate CSC personnel such as the project manager, and senior management while the UNIX Administrator is on route to the VDC
    3. Once HP is on site and replaced both primary and mirrored root disks, we will need to recover the Operating System with the latest make_recovery tape
    4. Once the Operating System is stable the UNIX Administrator will inform Operations to contact the Webmaster to have them check the status of the web sites and to determine if any additional restores will be necessary
    5. An outage will be recorded by OPS and a Route Cause Analysis will be generated by the UNIX Administrator

2.8.1. Backup Failure procedures

- If the backups fail, in the "Monitor" Window of Omniback
    1. Click on the "Failed" session to highlight it
    2. Click on Actions → Restart Failed Sessions
    3. If the backup fails to restart then, from the Omniback main menu, click on, Backup → click on the "HPL3-SFA_dev_intranet" to highlight → Actions → Backup Selected → Actions → Start Backup → Start Backup
    4. Monitor progress in the "Monitor" window
    5. If the backup fails again, contact the UNIX Administrator ASAP

2.8.2. Communications Failure Procedures

- If there is a communication or Ping problem with the server:
    1. Operations to physically go out to the server and see if all lights are operational
    2. If all lights are operational then, the Operator is to open a DOS shell window and execute a ping command to the IP address and see if they get a response
    3. After steps 1 and 2 are completed, and the system is operational, OPS will clear the error within TNG
    4. If after steps 1 and 2 are completed and the system is not responding to the ping command, OPS will contact the Primary

and/or alternate UNIX System Administrator who will travel to the VDC

[Sample]

Communications Failure Procedures (Continued):

5. If after the UNIX Administrator cannot correct the problem then UNIX Administrator will contact HP and notify Operations to contact the customer, project manager, and senior mangment

2.8.3. Application Failure procedures:

- If the application processes fail for any reason, TNG will report this
- Operations will need to notify the customer, i.e. the Webmaster first and let them know that they will only notify the UNIX Administrator to support him if need be
- Operations will instruct the customer to notify them once the Web site is up and running
- Operations will notify the UNIX System Administrator once the customer has notified them as an FYI

2.9. Other

2.9.1. Information unique to this specific system

3. Technical Information

3.1. Application Notes:

- Processes that should be running for the Webserver:
- Development:

  www ns-httpd -d /opt/ns-enterprise36/https-dev/config
  www ./uxwdog -d /opt/ns-enterprise36/https-dev/config
- Staging

  www ns-httpd -d /opt/ns-enterprise36/https-stg/config X
  www ./uxwdog -d /opt/ns-enterprise36/https-stg/config X
- Testing:

  www ./uxwdog -d /opt/ns-enterprise36/https-tst/config X
  www ns-httpd -d /opt/ns-enterprise36/https-tst/config X
- Web Administration Tool:

  www ./uxwdog -d /opt/ns-enterprise36/https-default/config X
  www ns-httpd -d /opt/ns-enterprise36/https-default/config X

3.2. Technical Notes

3.3. System Restore Procedures:

- N/A – For now this is the UNIX System Administrator's responsibility

3.4. Automated Event Management

- Webtrends monitors all persons who access the web site this is maintained by an NT administrator