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SAPI Preventive Maintenance

Lesson Objectives

By the end of this lesson you will be able to:

- Extract data on SAPI settings and usage
- Perform UPA checks
- Extract Score-related data
- Monitor SAPI time zone settings
- Monitor SAPI processes, configuration and connectivity settings
- Perform SAPI health checks
- Monitor ASYNC activity

Agenda

Settings and Usage

UPA

Score

Time Zone

Processes, Configuration, and Connectivity

Health Checks

ASYNC

Basic Data

- Check the hostname.

  => sapi1: hostname

```
sapi1
```

- Verify that it is Linux.

  => sapi1: uname -a

```
Linux sapi1 2.6.18-53.el5PAE #1 SMP Wed Oct 10 16:48:18 EDT
2007 i686 i686 i386 GNU/Linux
```

Check Score Version

=> sapi1: version

```
MASTER_DISK_RELEASE: CMV1 LNX SCORE
MD_VERSION: 2.1.0
INSTALLATION_TYPE: CMV1 SAPI
CMV1_COMPONENT: SAPI
SIZING: NORMAL
KICKSTART_FILE: ksLNX2sapi.cfg
CMV1_MD_BUILD_DATE: 24-Apr-2009
CMV1_LNX_SCORE: 2.1.0
HW_TYPE: DPM3
KERNEL_VERSION: 2.6.18-53.el5
INSTALL_DATE: 07-Jun-2010 at 07:36:26
RED_HAT: Red Hat Enterprise Linux Server 5 update 1
CMV1-ENV: 2.1.0-2
```

Check SAPI Packages Installed on this Host

=> sapi1: rpm -qa|grep -iE 'CBS_SAPI|CBS_RHT|CBS_ASYNC|CBS_WORKFLOW|weblogic'

```
CMV1-Oracle-BEA-WebLogic-10.3-2
CBS_SAPI-3.5.20.0-1.40.0_5.0.0_1
```

Check Installed UPA Packages

=> sapi1: cat /home/jboss/conf/version.properties| grep -v '^#'

```
base.package=3.5.15.4
command.package=3.5.15.4
configuration.package=3.5.15.4
inventory.package=3.5.15.4
job.package=3.5.15.4
monitor.package=3.5.15.4
process.package=3.5.15.4
rules.package=3.5.15.4
sysaudit.package=3.5.15.4
workflow.package=3.5.15.4
```

Check Installed UPA Version

=> sapi1: mshell secadmin/****** version**

```
COMMAND :

NodeClass NodeName       NodeInstance      BuildID              Platform
OS Version          OS Model    OS Arch   Base
SAPI      sapi1          10.20.64.86       05/13/2010 04:39    Linux
2.6.18-53.el5PAE    i686        i386      3.5.15.4
```

LD Packages

- Check LD Packages Installed on this Host

  => sapi1: rpm -qa|grep -i lnxLD

```
CMV1-lnxLD-2.11-1
```

- Check Status of LD

  => sapi1: lnxLD status

```
Locking lnxLD. PID 30413 ...locked. [   OK   ]
Checking for LNX-SCORE [   OK   ]
LD2 is the active LD and is in runlevel N 3 [   OK   ]
Host supports LD operations [   OK   ]
iLD is not mounted [   OK   ]
/XDISK is not mounted [   OK   ]
Default boot is: LD # (2) LNX SCORE [   OK   ]
Un-mounting /XDISK [   OK   ]
LD-enabled disk layout [   OK   ]
Detected DPM3 hardware [   OK   ]
```

Check iLDs

- Try to enter the iLD shell environment.
  => sapi1: lnxLD ild

- Check the iLD environment.
  => sapi1: env|grep LD

- Try to exit from the iLD shell environment.
  => sapi1 [LNX_SCORE_2_LD:ILD_ENV:mount]: exit

```
exit
Disabling the /dev filesystem in the iLD [   OK   ]
Disabling the /proc filesystem in the iLD [   OK   ]
Inactive logical disk (iLD) unmounted [   OK   ]
```

Validate /etc/hosts File

- Validate the /etc/hosts file entries for remote hosts.

  => sapi1: grep -vE "^$|^#|`hostname`" /etc/hosts|awk '{print $1" "$2" "$3" "$4}'|sort

- Validate the /etc/hosts file entries for the host itself.

  => sapi1: grep -v '^#' /etc/hosts|grep `hostname`|awk '{print $1" "$2" "$3}'|sort

```
10.20.64.77 rht1.plus.c1 rht1
10.20.64.78 rht2.plus.c1 rht2
10.20.64.79 omsapi1.plus.c1 omsapi1
10.20.64.86 sapi1.plus.c1 sapi1
10.20.66.101 sapi1-1
```

Resource Utilization (1)

- Check for the last host reboot.

  => sapi1: uptime

```
12:20:58 up 18 days,  9:15,  3 users,  load average: 0.30, 0.11, 0.12
```

- Check the memory usage.

  => sapi1: free -m

```
total       used       free     shared    buffers     cached
Mem:          3925       3769        155          0         32       1423
-/+ buffers/cache:       2314       1610
Swap:         2384          0       2384
```

Resource Utilization (2)

Check the 5 processes that are using the most memory.

=> sapi1: ps -eo user,pid,size,rss,args | sort -k 4nr | cut -c1-100 | head -5

```
apiuser  20501 1597332 1400868 /usr/java/jdk1.6.0_12/bin/java -
server -XX:MaxPermSize=256m -XX:+UseP
apiuser  25613 964740 718728 /usr/java/jdk1.6.0_12/bin/java -server
-XX:MaxPermSize=256m -XX:+UsePar
root     20826 427928 254108 /usr/java/jdk1.5.0_14/bin/java -
Dprogram.name=run.sh -Dmy.hostname=sapi
ntp       2063   832  4216 ntpd -u ntp -p /var/run/ntpd.pid -g
root     19625   756  2804 sshd: root@pts/4
```

Resource Utilization (3)

Check the CPU utilization.

=> sapi1: sar 3 3

```
Linux 2.6.18-53.el5PAE (sapi1)  06/07/2011

12:20:58 PM       CPU     %user     %nice   %system   %iowait
%steal     %idle
12:21:01 PM       all      1.00      0.00      0.33      7.15
0.00     91.51
12:21:04 PM       all      2.00      0.00      0.33      0.00
0.00     97.67
12:21:07 PM       all      3.83      0.00      5.32      0.17
0.00     90.68
Average:          all      2.27      0.00      2.00      2.44
0.00     93.29
```

Resource Utilization (4)

Check the disk usage.

=> sapi1: df -k

```
Filesystem            1K-blocks      Used Available Use% Mounted on
/dev/sda2               2885812   1831548    907672  67% /
/dev/sda5              18922876   9115020   8831108  51% /data
/dev/sda3              43264176  29427848  11638636  72% /home
tmpfs                   2009648         0   2009648   0% /dev/shm
```

Agenda

- Settings and Usage
- **UPA**
- Score
- Time Zone
- Processes, Configuration, and Connectivity
- Health Checks
- ASYNC

UPA Tests (1)

- Check the UPA maintenance mode.

  => sapi1 [LNX_UPA_3:UPA_VERSION:version]: mshell secadmin/****** maintenance_mode**

Should be disabled

```
COMMAND :
Site name  NodeClass  NodeName        NodeInstance       Message
M4AL       SAPI       sapi1           10.20.64.86        Maintenance
Mode is disabled
```

- Verify that inittab contains the agentStartup entry.

  => sapi1: cat /etc/rc.d/rc.local|grep agent

```
/home/jboss/bin/agentStartup
```

UPA Tests (2)

- Verify that the agent is running on the node.

  => sapi1 [LNX_UPA_3:UPA_VERSION:version]: mshell secadmin/****** status**

- Verify the active events.

  => sapi1 [LNX_UPA_3:UPA_VERSION:version]: mshell secadmin/****** list_active_events**

```
COMMAND :


SiteID          NodeClass          NodeName        EventID
Severity  Instance                    TimeStamp                Escalated
Acknowledged
```

UPA Tests (3)

- Verify that the monitors are enabled and that there is no blackout.

  => sapi1 [LNX_UPA_3:UPA_VERSION:version]: mshell secadmin/****** list_monitors**

- Verify that workflows are enabled on the node.

  => sapi1 [LNX_UPA_3:UPA_VERSION:version]: mshell secadmin/****** list_workflows**

- Verify that jobs and tasks are enabled on the node

  => 1 [LNX_UPA_3:UPA_VERSION:version]: mshell secadmin/****** list_jobs**

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Check Installed Packages

Check the packages that are installed on this host.

=> sapi1: rpm -qa --last|grep -Ei 'CMV|RTB|CBS|comverse'

Verify File Limits

Verify the Hard and Soft open file limits.

=> sapi1: ulimit -Sn;ulimit -Hn

Should be more than 2000 as required for UP Manager and SAPI, ASU

```
8192
8192
```

Checking LD Configuration

Check the LD config file.

=> sapi1: cat /etc/sysconfig/ldconf

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NTP Configuration

Output NTP Configuration

=> sapi1: /usr/sbin/ntpq -p

```
remote           refid      st t when poll reach   delay   offset  jitter
==============================================================================
 upm1            10.20.115.32     3 u  16d 1024    0    8.748    2.880    0.000
*upm2            10.20.115.32     3 u  287 1024  377    7.500    0.384    3.021
```

Time Zone Checks (1)

- Compare between nodes where the ZONE and date outputs are the same.

  => sapi1: grep -v '^#' /etc/sysconfig/clock;date +"%a %b %d %H:%M %Z %Y"

```
ZONE="Europe/Tirane"
UTC=false
ARC=false
Tue Jun 07 12:21 CEST 2011
```

=> sapi2: grep -v '^#' /etc/sysconfig/clock;date +"%a %b %d %H:%M %Z %Y"

```
ZONE="Europe/Tirane"
UTC=false
ARC=false
Tue Jun 07 12:21 CEST 2011
```

Time Zone Checks (2)

Check that /etc/localtime is linked to a proper file, and not to a copy of a file.

=> sapi1: ls -l /etc/localtime

```
-rw-r--r-- 4 root root 2084 Mar 23  2007 /etc/localtime
```

Agenda

- Settings and Usage
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- **Processes, Configuration, and Connectivity**
- Health Checks
- ASYNC

Check SAPI Processes (1)

Verify that the SAPI processes are running.

=> sapi1: ps -ef |grep bea |grep -v grep

```
apiuser  20501     1  6 05:28 ?        00:27:49 /usr/java/jdk1.6.0_12/bin/java -server -XX:MaxPermSize=256m -
XX:+UseParNewGC -XX:MaxNewSize=256m -XX:NewSize=256m -Xms1024m -Xmx1024m -XX:SurvivorRatio=128 -
XX:MaxTenuringThreshold=0 -XX:+UseTLAB -XX:+UseConcMarkSweepGC -XX:+CMSClassUnloadingEnabled -
Dweblogic.security.SSL.trustedCAKeyStore=/home/bea10.3/wlserver_10.3/server/lib/cacerts -Xverify:none -
Xverify:none -da -Dplatform.home=/home/bea/wlserver_10.3 -Dwls.home=/home/bea/wlserver_10.3/server -
Dweblogic.home=/home/bea/wlserver_10.3/server -Dwli.home=/home/bea/wlserver_10.3/integration -
Dweblogic.management.discover=false -Dweblogic.management.server=http://sapi1.plus.c1:7001 -Dwlw.iterativeDev=
-Dwlw.testConsole= -Dwlw.logErrorsToConsole= -
Dweblogic.ext.dirs=/home/bea/patch_wls1030/profiles/default/sysext_manifest_classpath:/home/bea/patch_cie660/p
rofiles/default/sysext_manifest_classpath -Dweblogic.ProductionModeEnabled=true -
Dweblogic.management.username=weblogic -Dweblogic.management.password=weblogic -Djava.endorsed.dirs=/endorsed
-Djava.security.auth.login.config=/home/sapi/server/domain/config/securityframework_config/sec_jaas.conf -
Dbea.home=/home/bea -Dweblogic.webservice.client.ssl.adapterclass=weblogic.webservice.client.JSSEAdapter -
Dweblogic.webservice.client.ssl.strictcertchecking=false -Dweblogic.security.SSL.enforceConstraints=off -
Dweblogic.security.SSL.allowSmallRSAExponent=true -Dweblogic.Name=MS_sapi1.plus.c1 -
Djava.security.policy=/home/bea/wlserver_10.3/server/lib/weblogic.policy -
Djava.security.egd=file:///dev/urandom weblogic.Server
apiuser  25613     1  0 May20 ?        01:34:37 /usr/java/jdk1.6.0_12/bin/java -server -XX:MaxPermSize=256m -
XX:+UseParNewGC -XX:MaxNewSize=256m -XX:NewSize=256m -Xms512m -Xmx512m -XX:SurvivorRatio=128 -
XX:MaxTenuringThreshold=0 -XX:+UseTLAB -XX:+UseConcMarkSweepGC -XX:+CMSClassUnloadingEnabled -Xverify:none -
Xverify:none -da -Dplatform.home=/home/bea/wlserver_10.3 -Dwls.home=/home/bea/wlserver_10.3/server -
Dweblogic.home=/home/bea/wlserver_10.3/server -Dwli.home=/home/bea/wlserver_10.3/integration -
Dweblogic.management.discover=true -Dwlw.iterativeDev= -Dwlw.testConsole= -Dwlw.logErrorsToConsole= -
Dweblogic.ext.dirs=/home/bea/patch_wls1030/profiles/default/sysext_manifest_classpath:/home/bea/patch_cie660/p
rofiles/default/sysext_manifest_classpath -Dweblogic.ProductionModeEnabled=true -Djava.endorsed.dirs=/endorsed
-Djava.security.auth.login.config=/home/sapi/server/domain/config/securityframework_config/sec_jaas.conf -
Dbea.home=/home/bea -Dweblogic.webservice.client.ssl.adapterclass=weblogic.webservice.client.JSSEAdapter -
Dweblogic.webservice.client.ssl.strictcertchecking=false -Dweblogic.security.SSL.enforceConstraints=off -
Dweblogic.security.SSL.allowSmallRSAExponent=true -Dweblogic.Name=ADMIN -
Djava.security.policy=/home/bea/wlserver_10.3/server/lib/weblogic.policy -
Djava.security.egd=file:///dev/urandom weblogic.Server
```

Check SAPI Processes (2)

Verify that the SAPI processes are enabled and running on the node.

=> sapi1 [LNX_UPA_3:UPA_VERSION:version]: mshell secadmin/****** list_processes**

```
COMMAND :

Process Listing

SiteID          NodeClass  NodeName        NodeInstance       Group
Name                 Pid       State    Status        Type
ModuleName        StartTime            Valid                ServerID

M4AL            sapi       sapi1           10.20.64.86
application  sapi_admin           --        ENABLED  scheduled
non-instrumented  --             --                 VALID
--
```

Check LAN Status

- Check the LAN interfaces. Verify the IP address, netmask.
  => sapi1: ifconfig -a

- Check the LAN routing.
  => sapi1: netstat -nr

```
Kernel IP routing table
Destination     Gateway         Genmask         Flags   MSS Window
irtt Iface
10.20.16.160    10.20.64.65     255.255.255.240 UG        0 0
0 eth4
10.20.16.0      10.20.64.65     255.255.255.192 UG        0 0
0 eth4
10.20.64.64     0.0.0.0         255.255.255.192 U         0 0
0 eth4
10.20.66.0      0.0.0.0         255.255.255.0   U         0 0
0 eth0
0.0.0.0         10.20.64.68     0.0.0.0         UG        0 0
0 eth4
```

Verify Ping Success

Verify that a ping succeeds with no loss of packets.

=> sapi1: ping -c 20 -f localhost

```
PING localhost.localdomain (127.0.0.1) 56(84) bytes of data.
.   .   .   .   .   .   .   .   .   .   .   .   .   .   .   .
.   .   .
--- localhost.localdomain ping statistics ---
20 packets transmitted, 20 received, 0% packet loss, time 0ms
rtt min/avg/max/mdev = 0.002/0.003/0.016/0.003 ms, ipg/ewma
0.012/0.004 ms
```

Checking TNSNames File

- Check the tnsnames file content.

  => sapi1: su - oracle -c "cat $ORACLE_HOME/network/admin/tnsnames.ora|grep -v '^#'"

Check SAPI Environment

- Check the Apiuser environment.

  => sapi1: su - apiuser -c "env|grep -Ei 'SAPI|JAVA'"

```
HOSTNAME=sapi1
PATH=/home/oracle/product/10.2.0/client_1/bin:/usr/java/jdk1.6.0_12/
bin:/usr/java/jdk1.5.0_14/bin:/home/jboss/bin:/usr/kerberos/bin:/usr
/local/bin:/bin:/usr/bin:/home/apiuser/bin
JAVA_HOME=/usr/java/jdk1.6.0_12
CBS_SAPI_SERVER_INSTALLDIR=/home/sapi/server
```

- Check the installed SAPI environment.

  => sapi1 [LNX_SAPI_SERVER:SAPI_ENV:sapi_home]: cat /home/sapi/server/bin/install.env|grep -v '^#';cat /home/sapi/server/bin/configure_sapi.sh|grep -v '^#'

Check SAPI Configuration Files

- config.xml file

  => sapi1 [LNX_SAPI_SERVER:SAPI_INSTALL_ENV:domain_dir]: cat /home/sapi/server/domain/config/config.xml

- CCBSConfiguration.properties file

  => sapi1 [LNX_SAPI_SERVER:SAPI_INSTALL_ENV:domain_dir]: cat /home/sapi/server/domain/config/CCBSConfiguration.

  properties|grep -v '^#‘

- workpoint-client.properties file. N/A for PREPAID.

  => sapi1 [LNX_SAPI_SERVER:SAPI_INSTALL_ENV:domain_dir]: cat /home/sapi/server/domain/config/workpoint-client.properties|grep -v '^#'

Check SAPI Connectivity

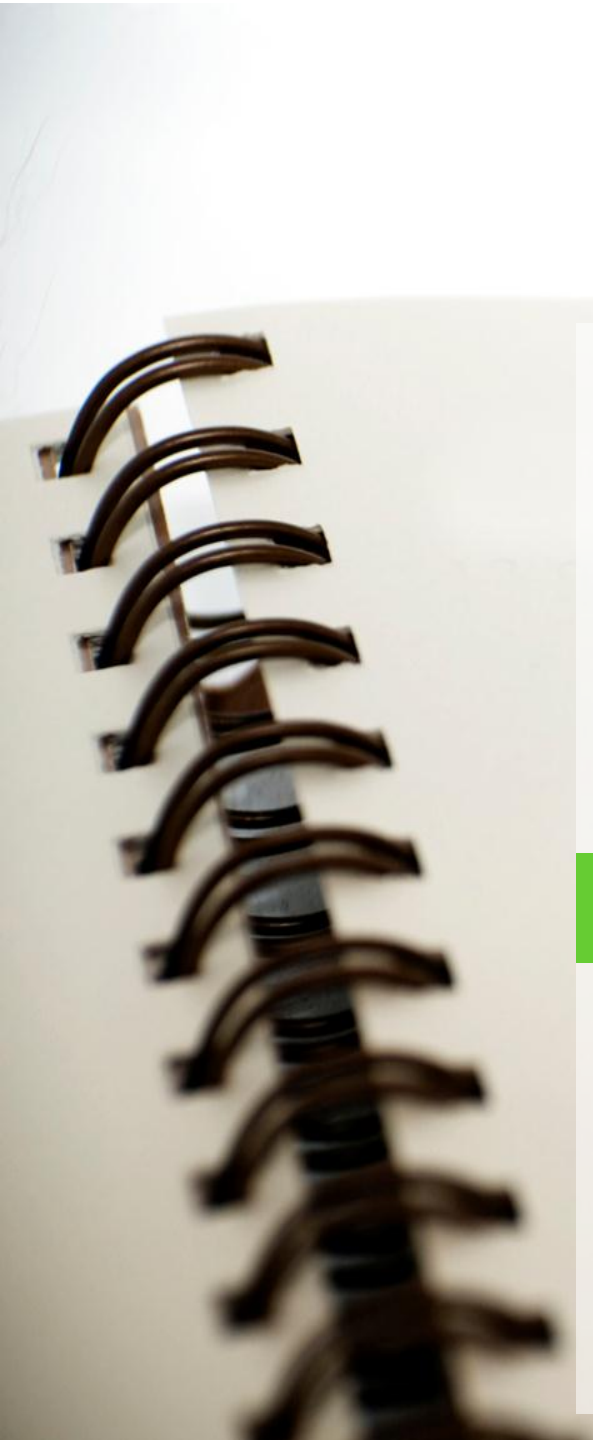
- Check the SAPI deployed mode and the connected databases.

  => sapi1: wget -O - sapi1.plus.c1:7001/sapi/db_info.jsp;for i in `echo "sapi1.plus.c1:8001,sapi2.plus.c1:8001"|sed 's/,/ /g'`; do wget -O - $i/sapi/db_info.jsp; done

- Check the SAPI connection to Workpoint (n/a for Prepaid).

  => sapi1 [LNX_SAPI_SERVER:SAPI_WORKPOINT:naming_provider]: for i in `echo "rht1.plus.c1:8051,rht2.plus.c1:8051"|sed 's/,/ /g'`; do wget -O - $i/wpConsole; done

Agenda



- Settings and Usage
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- Processes, Configuration, and Connectivity
- **Health Checks**
- ASYNC

SAPI Health Check

Check SAPI health.

=> sapi1: wget -O - sapi1.plus.c1:7001/H.jsp;for i in `echo "sapi1.plus.c1:8001,sapi2.plus.c1:8001"|sed 's/,/ /g'`; do wget -O - $i/H.jsp; done

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ASYNCH Configuration

Check the cbsuser environment for ASYNCH.

=> sapi1 [LNX_SAPI:SAPI_RPM:cbs_asynch]: N/A

Check the workpoint-client.properties file for ASYNCH. (n/a for Prepaid).

=> sapi1 [LNX_SAPI_SERVER:ASYNCH_ENV:batch_home]: N/A

ASYNCH connection to Workpoint. (n/a for Prepaid).

=> sapi1 [LNX_SAPI_SERVER:ASYNCH_WORKPOINT:naming_provider]: N/A

Verify the ASYNCH process is running.

=> sapi1 [LNX_SAPI_SERVER:ASYNCH_ENV:batch_home]: N/A

Summary

This lesson has covered:

- SAPI settings and usage
- UPA checks
- Score checks
- Time Zone monitoring
- SAPI processes, configuration and connectivity settings
- SAPI health checks
- ASYNCH activity monitoring

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