COMVERSE UNIVERSITY

Preventive Maintenance Summary

Lesson Objectives

By the end of this lesson, you will be able to perform the following maintenance activities:

- Generic health checks on all machines
- Control of table space and database invalid objects
- Rating/Online server
- DGU maintenance
- ASU/CMS/CCS maintenance
- SAPI maintenance
- RH&T maintenance

Agenda

- **Generic Health Checks**
- **Table Space and Database Invalid Objects**
- **Rating/Online Server**
- **Diameter Pipe**
- **ASU/CMS/CCS**
- **SAPI**
- **RH&T**

Disk Space Utilization

Use the **df -k** command to find out which partition is taking more disk usage in any UNIX/Linux machine.

```
[root@upm1 ~]# df -k
Filesystem                    1K-blocks       Used Available Use% Mounted on
/dev/vx/dsk/rootdg/rootvol    20315812  11890916   7376256  62% /
tmpfs                         4150020          0   4150020   0% /dev/shm
tmpfs                         4           0          4    0% /dev/vx
/dev/vx/dsk/rootdg/oravol     10485760   4342525   5759286  43% /oracle
/dev/vx/dsk/rootdg/oradump    2097152    172501   1804419   9% /oradump
/dev/vx/dsk/arcdg/arcvol      72875000  51815269  19743566  73% /archive
/dev/vx/dsk/ardg/arvol        9960440     19523   9319617   1% /arlog
/dev/vx/dsk/bkpdg/bkpvol      303561720 146808710 146959957  50% /backup_vol
/dev/vx/dsk/cdrdg/cdrvol      209189880  18380378 178883944  10% /cdr
/dev/vx/dsk/oradg/ora8vol     9960440     76506   9266236   1% /oracle/oracle8
/dev/vx/dsk/orpdg/orvol       209189880    117506 196005358   1% /orvol
/dev/vx/dsk/workdg/workvol    20446200  13521956   6493826  68% /staging
```

Memory Utilization

Use the **free -m** command to find out which memory usage on any UNIX/Linux machine.

```
[root@upm1 ~]# free -m
             total       used       free     shared    buffers     cached
Mem:          8105       7212        893          0         67       5832
-/+ buffers/cache:       1312       6793
Swap:         2047        205       1841
```

CPU Utilization

Use **sar 3 3** command to find out CPU Utilization on any UNIX/Linux machine.

```
[root@upm1 ~]# sar 3 3
Linux 2.6.18-8.el5PAE (asu12)   07/13/2009

07:41:46 AM       CPU     %user     %nice   %system   %iowait    %steal     %idle
07:41:49 AM       all      0.00      0.00      0.17      1.33      0.00     98.50
07:41:52 AM       all      0.50      0.00      0.00      0.00      0.00     99.50
07:41:55 AM       all      1.00      0.00      0.67      0.17      0.00     98.17
Average:          all      0.50      0.00      0.28      0.50      0.00     98.72
```

Load Average

Use **w** command to find out load-average on any UNIX/Linux machine.

```
[root@upm1 ~]# w
 06:42:09 up 131 days,  9:16,  5 users,  load average: 2.03, 1.90, 1.16
USER     TTY      FROM              LOGIN@   IDLE   JCPU   PCPU WHAT
root     pts/0    172.30.9.139     05:28   17.00s  0.06s  0.05s ssh cbsuser@sdp2b
root     pts/1    172.30.9.139     05:42   58:08   0.01s  0.00s ssh sapi4
root     pts/2    172.30.9.142     06:06    0.00s  0.02s  0.02s -bash
root     pts/3    172.30.9.139     05:44   51:14   0.03s  0.02s ssh sapi5
root     pts/4    172.30.9.139     05:51   21:15   0.07s  0.06s ssh sapi1
```

Core Dumps

Run the following command to find the core-dumps generated on any UNIX/Linux machine.

```
[root@ure1 root]# find / -name core*
/root/core.9469
[root@ure1 root]#
```

Agenda

- Generic Health Checks
- **Table Space and Database Invalid Objects**
- Rating/Online Server
- Diameter Pipe
- ASU/CMS/CCS
- SAPI
- RH&T

In Rating Database

Run the following commands in the Rating/Main database as **oracle8** user:

```
dbstat -cbsuser cbs_owner -cbspass comverse -sympass mg518 -sid hist -inv
dbstat -cbsuser cbs_owner -cbspass comverse -sympass mg518 -sid main -inv
dbstat -cbsuser cbs_owner -cbspass comverse -sympass mg518 -sid hist -tbs
dbstat -cbsuser cbs_owner -cbspass comverse -sympass mg518 -sid main -tbs
```

Invalid Objects in Other Database

Log in to each of ORP, PCAT database **cbs_owner** user and execute the following command to find any invalid objects.

```
SELECT OBJECT_NAME,OBJECT_TYPE FROM USER_OBJECTS WHERE STATUS='INVALID';
SELECT CONSTRAINT_NAME,TABLE_NAME,STATUS FROM USER_CONSTRAINTS WHERE STATUS NOT LIKE 'ENABLED';
SELECT TRIGGER_NAME,TABLE_NAME,STATUS FROM USER_TRIGGERS WHERE STATUS!='ENABLED' ORDER BY TABLE_NAME,TRIGGER_NAME;
```

Table Space in Database

Log in as **cbs_owner** user and run the following command on MAIN, HIST, PCAT, ORP and XE database to check table space.

```
SELECT D.TABLESPACE_NAME "TABLESPACE",
       ROUND(D.USEDSZ/1024/1024,0) "SIZE MB",ROUND(D.MAXSZ/1024/1024,0) "MAX SIZE MB",
       ROUND((D.USEDSZ-F.FREESZ)/1024/1024,0) "USED MB",ROUND(100*(D.USEDSZ-F.FREESZ)/D.MAXSZ,2) "USED %"
  FROM (SELECT TABLESPACE_NAME, SUM(DECODE(MAXBYTES,0,BYTES,MAXBYTES)) MAXSZ, SUM(BYTES) USEDSZ
          FROM DBA_DATA_FILES GROUP BY TABLESPACE_NAME) D,(SELECT TABLESPACE_NAME, SUM(BYTES) FREESZ
          FROM DBA_FREE_SPACE GROUP BY TABLESPACE_NAME) F
 WHERE D.TABLESPACE_NAME = F.TABLESPACE_NAME (+)
 ORDER BY 5 DESC;
```

Agenda

- Generic Health Checks
- Table Space and Database Invalid Objects
- **Rating/Online Server**
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Successful Voice Call, SMS, GPRS and USSD Activities (1)

- Log in to the Rating DB as **cbs_owner** and execute the following query twice to see if the count is increasing.
- If the count is not increasing, wait for 2 to 3 minutes and re-execute and see if the count is still not increasing.

USAGE_RECORD_MAIN is the view and below are 4 tables for storing usages.

USAGE_RECORD_MAIN_1a
USAGE_RECORD_MAIN_1b
USAGE_RECORD_MAIN_2a
USAGE_RECORD_MAIN_2b

```
select count (*),trunc(originate_datetime),TYPE_OF_CDR
from USAGE_RECORD_MAIN
where total_usage>0
group by TYPE_OF_CDR,trunc(originate_datetime)
order by trunc(originate_datetime);
```

COUNT(*)	TRUNC(ORIGINATE_DATETIME)	TYPE_OF_CDR
500	6/29/2009	1
200	6/29/2009	2
50	6/29/2009	5

CDR type:
1 -- Voice
2 -- Payment
3 -- USSD
5 – GPRS

Successful Voice Call, SMS, GPRS and USSD Activities (2)

- To check if the SMS is successful:

```
select count(*)
from PS_TRANSACTION_MAIN
where usage_amount>0 and trunc(date_time) = trunc(sysdate);
```

COUNT (*)	TRUNC(ORIGINATE_DATETIME)	TYPE_OF_CDR
383	6/29/2009	1
65	6/29/2009	2
9	6/29/2009	5

CDR type
1 -- Voice
2 -- Payment
3 -- USSD
5 – GPRS

Check Clear Cause to Verify

- Log in to Rating DB as **cbs_owner** and execute the following query and check the clear cause values.
- The ones highlighted in green color is normal call clearing and rest of them are for other clear causes.
- The count other clear cause has to be monitored.

Total CDR on usage record

```
select count(*) , a.CLEAR_CAUSE, b.text,
a.TYPE_OF_CDR
from USAGE_RECORD_MAIN a,call_history_rc_map b
where a.clear_cause=b.code
group by a.CLEAR_CAUSE,b.text,a.TYPE_OF_CDR
order by a.type_of_cdr;
```

Total CDR on usage record of current day

```
select count(*) , a.CLEAR_CAUSE, b.text,
                  a.TYPE_OF_CDR
from USAGE_RECORD_MAIN a,call_history_rc_map b
where a.clear_cause=b.code
and trunc(a.originate_datetime)=trunc(sysdate)
group by a.CLEAR_CAUSE,b.text,a.TYPE_OF_CDR
order by a.type_of_cdr;
```

COUNT(*)	CLEAR_CAUSE	TEXT	TYPE_OF_CDR
16	407	InsufficientCredit	1
10	413	InvCallForPostActive	1
2	410	MaxCallDurTimerExpires	1
62	17	Busy	1
5	28	invalid_number_format	1
32	19	no_answer	1
847	16	normalCallClearing	1
47	31	normal_unspecified	1
1	102	recovery_timer_expired	1
4	47	resource_unavailable	1
2	41	temporary_failure	1
6	1	unallocated	1
6	414	InvCallForPreActive	2
89	0	Unknown	2
8	16	normalCallClearing	2
5	412	fraud_locked_account	3
117	16	normalCallClearing	3
12	400	NormalCompletion	5

Success Ratio of Calls

- Call success ratio in the last 15 minutes

```
WITH T AS (SELECT COUNT(*) CNT, A.CLEAR_CAUSE,B.TEXT, A.TYPE_OF_CDR FROM USAGE_RECORD_MAIN A,
CALL_HISTORY_RC_MAP B
WHERE A.CLEAR_CAUSE=B.CODE AND A.ORIGINATE_DATETIME>(SYSDATE-0.120) AND A.CLEAR_CAUSE IN (16,41)
GROUP BY A.CLEAR_CAUSE,B.TEXT,A.TYPE_OF_CDR ORDER BY A.TYPE_OF_CDR)
SELECT ROUND(100*T1.CNT/(T1.CNT+T2.CNT),2) SUCCESS_RATIO, T1.TYPE_OF_CDR,
DECODE(T1.TYPE_OF_CDR,1,'Voice',2,'Payment',3,'USSD',4,'SMS',5,'GPRS') APPLICATION_TYPE
FROM T T1,T T2 WHERE T1.TYPE_OF_CDR=T2.TYPE_OF_CDR AND T1.CLEAR_CAUSE=16 AND T2.CLEAR_CAUSE=41;
```

- Call success ratio in the last 24 hours

```
WITH T AS (SELECT COUNT(*) CNT, A.CLEAR_CAUSE,B.TEXT, A.TYPE_OF_CDR FROM USAGE_RECORD_MAIN A,
CALL_HISTORY_RC_MAP B
WHERE A.CLEAR_CAUSE=B.CODE AND TRUNC(A.ORIGINATE_DATETIME)=TRUNC(SYSDATE) AND A.CLEAR_CAUSE IN
(16,41)
GROUP BY A.CLEAR_CAUSE,B.TEXT,A.TYPE_OF_CDR ORDER BY A.TYPE_OF_CDR)
SELECT ROUND(100*T1.CNT/(T1.CNT+T2.CNT),2) SUCCESS_RATIO, T1.TYPE_OF_CDR,
DECODE(T1.TYPE_OF_CDR,1,'Voice',2,'Payment',3,'USSD',4,'SMS',5,'GPRS') APPLICATION_TYPE
FROM T T1,T T2 WHERE T1.TYPE_OF_CDR=T2.TYPE_OF_CDR AND T1.CLEAR_CAUSE=16 AND T2.CLEAR_CAUSE=41;
```

Recharge Verification

- Log in to Rating DB as **cbs_owner** , execute the following query and check the clear cause values.
- The ones highlighted in **green** are normal call clearing and the rest of them are for other clear causes.
- The count of other clear cause has to be monitored.

```
select count (*),trunc(a.recharge_date_time) ,a.RCHG_SRC,b.display_value
from  recharge_history_main a , RECHARGE_ORIGINATOR_VALUES b
where a.rchg_src=b.origin_id and b.language_code=1
        and trunc(a.recharge_date_time) = trunc(sysdate)
group by trunc(a.recharge_date_time),a.RCHG_SRC,b.display_value;
```

COUNT(*)	TRUNC(A.RECHARGE_DATE_TIME)	RCHG_SRC	DISPLAY_VALUE
6	6/30/2009	3	USSD_Voucher
5	6/30/2009	1	IVR_Vouchers

Verify that URT, RCT and MHT Processes Are Running in the Rating DB

- These 3 process (URT,RCT and MHT) are responsible for dumping histories and this dump move to CUST DBs.

```
sdp1:/oracle/node1> ps -ef | grep -e URT -e MHT -e RCT |grep -v grep
 cbsuser 1650908 1761868   0   Jun 25      -  1:44 /staging/billing/bin/MHT mht01 9
 cbsuser 2879876 1761868   0   Jun 25      -  1:21 /staging/billing/bin/RCT rct01 9
 cbsuser 1499920 1761868   0   Jun 25      -  1:30 /staging/billing/bin/URT urt01 9
sdp1:/oracle/node1>
```

- These 3 process (URT,RCT and MHT) are responsible for dumping histories and this dump move to CUST DBs.

```
sdp1:/oracle/node1> ps -ef|grep -i sdsagent|grep -v grep
 oracle8 1647200       1   0   Jun 19      -  1:38 /oracle/oracle8/rchg_agent/sdsagent
sdp1:/oracle/node1>
```

DB Package Recompilation Verification

- Execute the following SQL in the Rating DB to verify if any of the packages has been recompiled recently.
- In particular, if any NOTIF package is recompiled – contact Comverse site OM or open an SR case.

```
SELECT OBJECT_NAME, OBJECT_TYPE, CREATED, LAST_DDL_TIME, STATUS FROM USER_OBJECTS
WHERE OBJECT_TYPE LIKE '%PACKAGE%' ORDER BY LAST_DDL_TIME DESC;
```

OBJECT_NAME	OBJECT_TYPE	CREATED	LAST_DDL_TIME	STATUS
PKG_CURRENCY_CONVERSION	PACKAGE BODY	12/30/2010 00:56:21	07/19/2011 20:30:15	INVALID
RDBACCOUNTSUBSCRIBER	PACKAGE BODY	09/15/2008 12:40:26	05/19/2011 11:08:23	VALID
PUBLIC_PKG_RETRIEVESUB_BATCH	PACKAGE BODY	09/15/2008 12:40:03	05/19/2011 11:08:22	VALID
DM_INTF_PKG	PACKAGE BODY	09/15/2008 12:40:17	05/19/2011 11:08:19	VALID
BATCH_PKG_SUBS_PARAM_UPD	PACKAGE BODY	09/15/2008 12:40:28	05/19/2011 11:08:19	VALID
BATCH_PKG_SUBSCRIBERS	PACKAGE BODY	09/15/2008 12:40:22	05/19/2011 11:08:18	VALID
BATCH_PKG_RESET_USAGE	PACKAGE BODY	09/15/2008 12:40:24	05/19/2011 11:08:17	VALID
BATCH_PKG_PURGE	PACKAGE BODY	09/15/2008 12:40:20	05/19/2011 11:08:16	VALID
BATCH_PKG_RESERVATION	PACKAGE BODY	09/15/2008 12:40:20	05/19/2011 11:08:16	VALID

Table Space (TBS) to Be Checked for MAIN and HIST DB

- If any of TBS usage is higher than 75%, then escalate to Comverse.
- Execute the following two commands as oracle8 user.
  - dbstat -cbsuser cbs_owner -cbspass comverse -sympass mg518 -sid hist -tbs
  - dbstat -cbsuser cbs_owner -cbspass comverse -sympass mg518 -sid main -tbs

Check Disk Space, EMC Disk State

```
sdp1:/oracle/node1> df -k
Filesystem    1024-blocks      Free %Used    Iused %Iused Mounted on
/dev/hd4          3145728   3086620    2%     2777     1% /
/dev/hd2          7340032   3131852   58%    36531     5% /usr
/dev/hd9var       7340032   5978732   19%     1354     1% /var
/dev/hd3          3145728   1816704   43%    31441     8% /tmp
/dev/fwdump       1572864   1572268    1%        9     1% /var/adm/ras/platform
/dev/hd1           262144    260488    1%       38     1% /home
/proc                   -         -    -        -     -  /proc
/dev/hd10opt      1048576    763044   28%    10299     6% /opt
/dev/oravol      10485760   4347788   59%    46994     5% /oracle
/dev/oradumpvol     3145728   3132520    1%     1488     1% /oradump
/dev/arcvol    1072693248 970007784   10%      591     1% /archive
/dev/bkpvol    1072693248 960717604   11%     5142     1% /backup_vol
/dev/Hbkpvol    251133952 251040180    1%       40     1% /history_vol
/dev/ora8vol    133955584 133701472    1%      885     1% /oracle/oracle8
/dev/workvol    251396096 248983108    1%    51999     1% /staging
/dev/nsrvol      10223616  10212812    1%     1140     1% /nsr_cluster

navicli -h emc1 getdisk -state

navicli -h emc2 getdisk -state
```

Agenda

- Generic Health Checks
- Table Space and Database Invalid Objects
- Rating/Online Server
- **Diameter Pipe**
- ASU/CMS/CCS
- SAPI
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Configuration Files

The DGA process uses the following configuration files:

- **/home/omni/conf/db.DGU.dga.206** – the file contains a sequence of MML commands
- **/home/omni/conf/rc.DGA.206** – contains only recent user entered activate and deactivate MML commands
- **etc/hosts** – each clients and dsu must be provisioned in /etc/hosts with FQDN.
- `/etc/services`

  diameter 3868/tcp # Diameter dedicated port
  d_ocs 10410/tcp # Diameter Online Charging Server port on the DGU

MML Provisioning Hierarchy

- To run MML, type:

  su - dguuser
  omd DGU

- The DGU is configured in a hierarchical manner as follows:
  1. The peer connections are configured: DGU-CREATE-PEER
  2. The network realms are configured: DGU-SET-LOCAL-REALM DGU-CREATE-REALM
  3. The network service applications are configured for the realms: DGU-CREATE-SERVICE
  4. The peer connections are added to the network service applications: DGU-ADD-PEER-SERVICE
  5. The SLU connections are configured: DGU-CREATE-SLU
  6. The SLU realms are configured: DGU-CREATE-SLU-REALM
  7. The SLU service applications are configured for the realms: DGU-ADD-SLU-SERVICE
  8. The SLU connections are added to the SLU service applications: DGU-CREATE-SLU-SERVICE
  9. The SLU connections are activated: DGU-ACTIVATE-SLU
  10. The peer connections are activated: DGU-ACTIVATE-PEER

DGU-DISPLAY-MEAS (1)

Output to Console will display the following:

- Message statistics on a peer connection basis with the following information for each message:
  - Message request receive count
  - Message request receive discard count
  - Message answer(success) transmit count
  - Message answer(failure) transmit count
  - Message answer transmit timeout count
  - Message request transmit count
  - Message request transmit reject count
  - Message answer(success) receive count
  - Message answer(failure) receive count
  - Message answer receive timeout count

DGU-DISPLAY-MEAS (2)

Performance statistics on a SLU connection basis:

- Request to answer delay in ms. – minimum value
- Request to answer delay in ms. – maximum value
- Request to answer delay in ms. – mean value
- Request to answer delay less than 100 ms. – count
- Request to answer delay from 100 to 200 ms. – count
- Request to answer delay from 200 to 400 ms. – count
- Request to answer delay from 400 to 1000 ms. – count
- Request to answer delay from 1 to 2 s. – count
- Request to answer delay from 2 to 4 s. – count
- Request to answer delay from 4 to 10 s. – count
- Request to answer delay greater than 10 s. – count

DGU OMNI Commands (1)

Users: dguuser/dguuser
root/sonora

SHM Number 206

Start/Stop – UNIX

User	Command	Description
Root	init a	Start OMNI
Root	Terminate 0	Stop OMNI

Start/Stop – Linux

User	Command	Description
Root	service omni start	Start OMNI
Root	service omni stop	Stop OMNI

DGU OMNI Commands (2)

Logging/Monitoring

User	Command	Description
Root	/home/omni/dgu1/tmp	All log files (Event* and Alarm*)
dguuser	pevt	Outputs the last log events (equivalent to a tail on the Event* file)
dguuser	ps -eaf | grep pop	Check if POP (Preventive Operations Process) is up. This is OMNI's mother process
dguuser	ps -eaf | grep omni	Check if OMNI is started

DF Commands – Commands used vs. the Shared Memory. They can be typed in the UNIX console.

User	Command	Description
dguuser	DF<UNIX_COMMAND>	Equivalent of the <UNIX_COMMAND> vs. the Shared Memory. See examples below.
dguuser	DFls	Lists the files on the DF
dguuser	Dfdir	Displays all the files common to the OMNI Cluster on each one of the CEs
dguuser	Dfcat <FILE>	Displays the contents of a file <FILE>
dguuser	DFcat tapdes.206	OMNI startup list of management processes
dguuser	DFcat cestart.206	OMNI application (User Layer) startup that activates the processes, for example, DGA process. Means Computer Element Start

DGU OMNI Commands (3)

MML – Commands used to enter and use the MML Shell. The first two lines are to enter the shell, the others that state **from mml** are to be executed from the MML Shell.

User	Command	Description
dguuser	mml	Starts MML – can work or can *not* work. If not, use the termhandler -node C7 command
dguuser	termhandler -node C7	Starts MML if the MML command does not work
from mml	dgu-display-all;	Display all peers as well as SLUs
from mml	dgu-activate-peer;	
from mml	dgu-deactivate-peer;	
from mml	dgu-activate-slu;	
from mml	dgu-deactivate-slu;	
from mml	dgu-display-meas;	Displays measurements, including the messages

DGU OMNI Commands (4)

OMD – OMNI Debugger. To use this tool, you first enter the process (with omd <PROCESS>) then once in the process.

User	Command	Description
dguuser	omd DGA	Starts OMD debugger, for DGA. Upper case always
from omd shell	DGA>>#TR,10	Last 10 log events
from omd shell	DGA>>#GETM	Gets log level
from omd shell	DGA>>#SETM,n	Sets log level to n
from omd shell	DGA>>#SETM,0xffffffff	Debug on the DGA process
from omd shell	DGA>>?	Help for all the available commands
from omd shell	DGA>>DGA,?	Help for all the available commands on the DGA process

DGU Configuration

Configuration files – file system

Files in the unit file system. You can list, view and edit these files from the UNIX console.

User	Command	Description
dguuser	/home/omni/ipf/conf/dguPlatform.dgu1	Main configuration file.
dguuser	/home/omni/ipf/conf/configureDGU <CEname>	This script configures the DGU platform and nodes. VI this file to get the instructions on how to run it. Full details are in the comments at the beginning.
dguuser	/home/omni/conf/portConf.206	

Configuration files – SHM

Files in the Shard Memory. You need to use the DF* commands to list, view or edit these files.

User	Command	Description
dguuser	db.DGU.dga.206	Configuration of the DGA process (node name, UDP port, and so on)

DSLU OMNI Commands (1)

Users sncpuser/sncpuser
root/sonora

SHM Number 202

Start/Stop – UNIX

User	Command	Description
Root	init a	Start OMNI
Root	Terminate 0	Stop OMNI

Start/Stop – Linux

User	Command	Description
Root	service omni start	Start OMNI
Root	service omni stop	Stop OMNI

DSLU OMNI Commands (2)

Logging/Monitoring

User	Command	Description
sncpuser	/home/omni/dslu1/tmp	All log files (Event* and Alarm*)
sncpuser	pevt	Outputs the last log events
sncpuser	ps -eaf | grep -i ure	To see the URE processes because they are not displayed in the cestart.202 file
sncpuser	ps -eaf | grep pop	Check if the POP (Preventive Operations Process) is up. This is the mother process of OMNI.
sncpuser	ps -eaf | grep omni	Check if OMNI is started

DF Commands – Commands that are used vs. the Shared Memory. They can be typed in the UNIX console.

User	Command	Description
sncpuser	DF<UNIX_COMMAND>	Equivalent of the <UNIX_COMMAND> vs. the Shared Memory. See examples below.
sncpuser	DFls	Lists the files on the DF
sncpuser	Dfdir	Displays all the files common to the OMNI Cluster on each one of the CEs
sncpuser	Dfcat <FILE>	Displays the contents of a file <FILE>
sncpuser	DFcat tapdes.202	OMNI startup list of the processes to run when OMNI is invoked, for example, IP_NM, TSP… except the URE processes
sncpuser	DFcat cestart.202	OMNI application (User Layer) startup that activates the OCS_SLF, URE_U, URE_Q processes

DSLU OMNI Commands (3)

MML – Commands used to enter and use the MML Shell. First two lines are to enter the shell, the others that say **from mml** are to be executed from the MML Shell

User	Command	Description
sguuser	mml	start MML - can work or can *not* work. If not, use the following line.
sguuser	termhandler -node C7	Start MML if the mml command does not work
from mml	displ-designation;	Lists processes, for example, IP_NM, TSP, and so on, EXCEPT THE URE PROCESSES. The URE processes only appear with ps -eaf

OMD – OMNI Debugger. To use this tool, you first enter the process (with omd <PROCESS>) then once in the process:

User	Command	Description
sncpuser	omd OCS_SLF	Starts OMD debugger, for OCS_SLF. Upper case always
from omd shell	OCS_SLF>>#TR,10	Last 10 log events
from omd shell	OCS_SLF>>#GETM	Gets log level
from omd shell	OCS_SLF>>#SETM,n	Sets log level to n
from omd shell	OCS_SLF>#SETM,0xffffffff	Debug on the OCS_SLF process.
from omd shell	OCS_SLF>>?	Help for all the available commands
from omd shell	OCS_SLF>>OCS_SLF,?	Help for all the available commands on the OCS_SLF process

DSLU Configuration

Configuration files – file system

Files in the unit file system. You can list, view and edit these files from the Unix console.

User	Command	Description
sncpuser	/home/omni/ipf/conf/sluPlatform.dslu1	Main configuration file. Connection to SGU, UPM, CCS, DGU, SDP, ORP, Processes ports, SSN
sncpuser	/home/omni/conf/hosts.SLU	Contains list of hostname of the units that URE communicates, that is, SGU/SDP/UPM/and so on
	/home/omni/conf/pps.lbbPrecedence.202	This configuation file is used to specify how the A Party and B Party locations are determined (Cell_ID Cell_ID_DEFAULT, A_Number, B_Number, Anywhere)
	/home/omni/conf/pps.CoreOCSModules.202	
	/home/omni/conf/pps.ExtensionOCSModules.202	
	/home/omni/conf/ocs.xml	
	/home/omni/conf/ocs_cmvt_service.tmpl.xml	

Agenda

- Generic Health Checks
- Table Space and Database Invalid Objects
- Rating/Online Server
- Diameter Pipe
- **ASU/CMS/CCS**
- SAPI
- RH&T

ASU Health Check (1)

Log in to LBA2 as **comverse** user and execute the server get command to check that all the ASU machines are active in the farm.

```
server get
        Server Table
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÂÄÄÄ
Farm Address    ³Server Address ³Server Name    ³Operational Sta³Attached Users
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄ
10.18.39.70     ³10.18.39.88    ³osa_slu_1a     ³Active          ³0
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
10.18.39.70     ³10.18.39.89    ³osa_slu_2a     ³Active          ³0
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
10.18.39.76     ³10.18.39.94    ³ASU1           ³Active          ³3
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
10.18.39.76     ³10.18.39.95    ³ASU2           ³Active          ³3
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
10.18.39.76     ³10.18.39.96    ³ASU3           ³Active          ³2
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
10.18.39.76     ³10.18.39.97    ³ASU4           ³Active          ³2
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
10.18.39.76     ³10.18.39.98    ³ASU5           ³Not In Service ³0
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
```

ASU Health Check (2)

An ASU health check can be done from the following URL, all the DB status should be good and also the call statistics should increase.

```
http://<ASU IP address>:7001/webmonitor/
http://<ASU IP address>:7001/webmonitor/monitor.jsp
Database Status :
Overall health : Good.
```

Database Type	Database Name	Server ID	Status	API Error
BILLING_CATALOG	CTLG	1	good	
BILLING_CUSTOMER	CUST1	3	good	
UNSCALEDPC	BLUS	4	good	
RATING_MASTER	MAIN1	9	good	
RATING_HISTORY	HIST1	9	bad	com.comverse.api.framework.errors.ApiRuntimeException: Selected database is not configured in JDBC configuration: jdbc/RATING_HISTORY/9.

CMS – Process Check

Log in to CMS machine as root user, execute the following command and check if all the processes are Up and that Last terminated is not today.

```
[root@cms1 root]# MamCMD -d

Unit Type:     CMS-SS7
Active Alarms: 0
Unit status: Running

================================================================================
Process Name          Status Start Time          LastTerminated      Terminated
================================================================================
ALM_NetSNMP           Up     06/22/2009 11:22:46 06/22/2009 11:22:09 24
NetSNMP               Up     06/22/2009 11:22:46 06/22/2009 11:22:10 24
rsnsd                 Up     06/22/2009 11:22:46 06/22/2009 11:22:19 24
Marimba               Up     05/05/2009 18:51:39 -                   0
cagealarm             Up     06/22/2009 11:22:56 06/22/2009 11:22:19 24
Babsrv                Up     06/22/2009 11:22:46 06/22/2009 11:22:10 24
NIM2_Board            Up     06/22/2009 11:23:31 06/22/2009 11:22:32 24
```

CMS – E1 Status

- Execute portmon to find the status of E1.

```
root@cms1 root]# portmon -t 1
Trunk Num: 1   LocalAlarm: Ok       RemoteAlarm: Ok       FrameSync: Ok

P# CS      LCL  REM  P# CS      LCL  REM  P# CS      LCL  REM  P# CS      LCL  REM  P# CS      LCL  REM  P# CS      LCL  REM
01 Idle    ACTV ACTV 02 Idle    ACTV ACTV 03 Idle    ACTV ACTV 04 Idle    ACTV ACTV 05 Idle    ACTV ACTV 06 Idle    ACTV ACTV
07 Idle    ACTV ACTV 08 Idle    ACTV ACTV 09 Idle    ACTV ACTV 10 Idle    ACTV ACTV 11 Idle    ACTV ACTV 12 Idle    ACTV ACTV
13 Idle    ACTV ACTV 14 Idle    ACTV ACTV 15 Idle    ACTV ACTV 16 Idle    ACTV ACTV 17 Idle    ACTV ACTV 18 Idle    ACTV ACTV
19 Idle    ACTV ACTV 20 Idle    ACTV ACTV 21 Idle    ACTV ACTV 22 Idle    ACTV ACTV 23 Idle    ACTV ACTV 24 Idle    ACTV ACTV
25 Idle    ACTV ACTV 26 Idle    ACTV ACTV 27 Idle    ACTV ACTV 28 Idle    ACTV ACTV 29 Idle    ACTV ACTV 30 Idle    ACTV ACTV
31 Idle    ACTV ACTV 32 Disabl LMLH RM

Connection to CCS-A: Up
Connection to CCS-B: Up
```

- Check disk space, free memory , CPU utilization

  df -k

  free -m

  sar 3 3

CCS – Link Status

Log in to CCS as **omni** user and execute the following command to check the link status.

```
alpha] [/home/omni] 103 > mml
OMNI [06 Oct 2008 12:01:56] #1:displ-slk;

--- SIGNALLING LINKS --

Name     Nbr  LSet       LSet SLC Port Chan Speed      ADPC      State   Status
              Name       Nbr

LNK0       1  LSET0        1   0    0   17  64000  2638(0x a4e)  ACTIVE   inbolraP

LNK8       2  LSET1        2   0    8   17  64000  2641(0x a51)  ACTIVE   inbolraP

LNK16      3  LSET2        3   0   16   17  64000  7686(0x1e06)  ACTIVE   inbolraP

LNK24      4  LSET3        4   0   24   17  64000  7687(0x1e07)  ACTIVE   inbolraP
```

CCS – Check OMNI Processes (1)

- Use DISPL-DESIGNATION to display all OMNI processes and check if they are running.
- MCONF and ALMSVR are insignificant. Rest of the processes should be running. If this is not the case – contact Comverse customer support.

```
Send [DISPL-DESIGNATION;]? [Y/N]y
Sent MML command #2  to PM, cmd[DISPL-DESIGNATION;]
starting 600 sec. timer...
2    [06 Oct 2008 12:04:59]
DISPL-DESIGNATION;
Designatable Process copies for system 201

Process         Active Copy    Standby Copy    Idle Copies
TAP             alpha          beta
PM              alpha          beta
PortMon         alpha          beta
OOSVR           alpha          beta
GUISVR          alpha          beta
MCONF           alpha          beta
SGC             (none)         (none)
C7_NM           alpha          beta
C7_MEAS         alpha          beta
C7_L3MTP        alpha          beta
C7_SCMG         alpha          beta
C7_ISMG         alpha          beta
C7_TCMG         alpha          beta
SIGH0           alpha          beta
```

CCS – Check OMNI Processes (2)

Execute the following command to see if any OMNI processes were restarted.

```
SLU:ccs1> ps -ef | grep -i restart | grep -v grep
sncpuser  2328 12672  0 Jun29 ?        00:00:22 /home/omni/bin/inacap -max_transactions 8000 -restart
sncpuser  2356 12672  0 Jun29 ?        00:00:10 /home/omni/bin/CallProcessor -name OPPS -T -restart
SLU:ccs1>
```

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LBA and SAPI Health Check

Log in to LBA1 as comverse user and execute the “server get” command to see all SAPIs that are currently active in the farm.

```
[root@upm1 ~]#
Username: comverse
Password: CTImaint
Password OK
server get
        Server Table
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÂÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÂÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÂÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÂÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÂÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
Farm Address  ³Server Address ³Server Name   ³Operational Sta³Attached Users
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
172.25.5.137  ³172.25.5.141  ³SAPI1        ³Active       ³0
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
172.25.5.137  ³172.25.5.142  ³SAPI2        ³Active       ³0
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
172.25.5.138  ³172.25.5.144  ³OSA1         ³Active       ³0
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÅÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
172.25.5.138  ³172.25.5.145  ³OSA2         ³Active       ³0
ÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÁÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÁÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÁÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÁÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÁÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄÄ
```

SAPI Log Viewer Tool for Checking SAPI Response Time (1)

- To run this application, log in to UPM and run the command as follows:

```
[root@upm1 ~]# pwd
/root
[root@upm1 ~]# python ./sapilogviewer.py -r
```

- Press **g** in the GUI to see all available statistics, mainly verify if load is distributed across SAPIs and check if response time of any query is greater than 10 seconds (see the following output for an example).

```
SAPI Requests by Host, sorted alphabetically
--------------------------------+-------
Hostname                        | Count
--------------------------------+-------
sapi4                           |  4500

SAPI Requests by User, sorted alphabetically
--------------------------------+-------
Username                        | Count
--------------------------------+-------
bcuser                          |   345
recharge                        |    58
rht                             |  4097

(see the following output)
```

SAPI Log Viewer Tool for Checking SAPI Response Time (2)

SAPI Requests by Exception, sorted alphabetically

Exception	Count
Can not find the external id	55

SAPI Requests by Service Name, sorted alphabetically

Service Name	Count	Min	Max
accountGet	129	0.065	0.793
accountRetrieveSubscribers	69	0.038	0.609
callingCircleFind	78	0.033	0.610
callingCircleFindBySubscriber	78	0.030	0.941
callingCircleRemoveMember	35	0.205	1.471
invElementGet	492	0.035	0.514
invSecurityFind	59	0.036	0.509
itemFind	1487	0.029	1.017
logicalServiceOrderGet	63	0.035	0.554
nonVoucherRechargeSubscriber	58	0.030	0.463
offerGet	129	0.006	0.222
offerInstanceFind	752	0.034	4.976
offerInstanceGet	184	0.043	0.567
rcsHealthCheck	1	0.429	0.429
serviceCategoryFind	69	0.029	0.431
serviceOrderActivate	97	0.850	26.890

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RHT/Workflow Process Checkup

- All SAPI servers that are up in LBA have dedicated RHT servers. Below is the SAPI and RHT pairing information.
- To verify that the workflow process is running on SAPI1 and on all paired RHT:

```
[root@sapi1 ~]# ps -ef|grep -i core_wflow |grep -v grep
workflow  1212     1  0 Jun25 ?    00:08:13 /usr/java/jdk1.6.0_12/bin/java -server
-XX:MaxPermSize=256m
-XX:MaxNewSize=256m -XX:NewSize=256m -Xms1024m -Xmx1024m -XX:+UseTLAB -
XX:SurvivorRatio=128
-XX:MaxTenuringThreshold=0 -verbosegc -XX:+PrintGCDetails -XX:+PrintGCTimeStamps
-Xloggc:/home/bea10.3/user_projects/domains/core_wflow/gc_20090625183923.log -
Xverify:none -da
-Dplatform.home=/home/bea10.3/wlserver_10.3 -
Dwls.home=/home/bea10.3/wlserver_10.3/server -
[root@sapi1 ~]#

Current case:
SAPI5 - RHT (SAPI15)
SAPI6 - RHT (SAPI16)
SAPI7 - RHT (SAPI16)
SAPI8 - RHT (SAPI18)
```

Summary

This lesson has covered:

- Generic health checks on all machines
- Control of table space and database invalid objects
- Rating/Online server
- DGU maintenance
- ASU/CMS/CCS maintenance
- SAPI maintenance
- RH&T maintenance

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