

Day3 - SAP Sybase ASE Session



Training Agenda

	Sr No	Topic details
Day 1 and 2	1	Introduction to ASE
	2	ASE server components
	3	ASE multiple databases
	4	System tables & procedures
	5	ASE directory structure
	6	Starting & stopping server
	7	ASE configuration file
		Lab exercise
Day 3 and 4	8	ASE memory components
	9	Cache types and usage
	10	ASE devices
	11	Database and options
	12	Manage database in ASE
	13	Administering system roles and logins
	14	Managing database access and users
	15	Implementing object permissions, groups and roles
	16	Database Backup & recovery
		Lab exercise
Day 5 and 6	17	Sybase utilities
	18	Monitoring ASE using dbacockpit
	19	Maintenance tasks and commands
	20	Basic understanding of sp_sysmon
	21	Sybase SP patching
		Lab exercise



Client Utility Programs

- **Sybase Central** – a GUI system management program
- **bcp** – a program that copies data to and from a file
- **optdiag** – a program for detecting inefficient space usage in tables using data-only locking
- **SQL Debugger** (sqldbgr) – a command-line utility that debugs stored procedures and triggers
- **ddlgen** – a Java-based tool that generates definitions for server- and database-level objects in Adaptive Server
- **sybmigrate** - moves schema and data from one ASE server to another

bcp program



```
sybesp@encsapespci:~/dba_work> bcp master..sysdatabases out db-names.out -Usapsa -SESP -c
Password:

Starting copy...

9 rows copied.
Clock Time (ms.): total = 39 Avg = 4 (230.77 rows per sec.)
You have new mail in /var/spool/mail/sybesp
sybesp@encsapespci:~/dba_work>
sybesp@encsapespci:~/dba_work> cat db-names.out
master 1 1 1 8784 Apr 5 2014 4:19:52:173PM Aug 8 2015 5:48:01:220AM -32768 0 0
31072 16384 1 1 0 1 Apr 5 2014 4:19:52:173PM Jul 17 2015 4:13:01:186AM -32768 0 0
model 3 1 1 918 1 Apr 5 2014 4:19:52:173PM Jul 17 2015 4:13:01:186AM -32768 0 0
31072 16384 1 1 0 1 Apr 5 2014 4:19:52:173PM Jul 17 2015 4:13:01:186AM -32768 0 0
tempdb 2 1 8717 1 34257 Jul 16 2015 6:30:25:330AM Aug 9 2015 5:01:41:803PM -32767 0 0
31072 540672 1 6 0 1 Jul 16 2015 6:30:25:330AM Aug 9 2015 5:01:41:803PM -32767 0 0
sybssystemdb 31513 1 9 1 925 Apr 5 2014 4:19:52:173PM Jul 17 2015 4:16:35:183AM -32768 0 0
31072 16384 1 1 0 1 Apr 5 2014 4:19:52:173PM Jul 17 2015 4:16:35:183AM -32768 0 0
sybssystemprocs 31514 1 9 1 12663 Apr 5 2014 4:20:08:586PM Aug 6 2015 5:25:29:930AM -32768 0 0
31072 16384 1 1 0 1 Apr 5 2014 4:20:08:586PM Aug 6 2015 5:25:29:930AM -32768 0 0
sybmgmtdb 31515 1 13 1 55462 Apr 5 2014 4:22:13:336PM Aug 9 2015 5:01:41:323PM -32768 0 0
31072 16384 1 1 0 1 Apr 5 2014 4:22:13:336PM Aug 9 2015 5:01:41:323PM -32768 0 0
ESP 4 4 8705 1 7867457 Apr 5 2014 4:36:50:050PM Aug 9 2015 5:00:27:320PM 1 0 0
31072 -1589067776 1 100 2000 1 Apr 5 2014 4:36:50:050PM Aug 9 2015 5:00:27:320PM 1 0 0
sapttools 5 4 8713 1 193121 Apr 5 2014 4:37:14:050PM Aug 9 2015 5:01:41:773PM 1 0 0
31072 537411584 1 100 2000 1 Apr 5 2014 4:37:14:050PM Aug 9 2015 5:01:41:773PM 1 0 0
sapttempdb 6 1 8717 1 248797 Jul 16 2015 6:30:31:330AM Aug 9 2015 5:01:41:806PM -32767 0 0
31328 540672 6 0 1 Jul 16 2015 6:30:31:330AM Aug 9 2015 5:01:41:806PM -32767 0 0
```



```
sybesp@encsapespci:~/dba_work> optdiag statistics ESP..USR02 -Usapsa -SESP -oUSR02.opt
```

Password:

```
OptDiag/15.7/EBF 24647 SMP SP134 /P/x86_64/Enterprise Linux/ase157sp133x/3925/64-bit/OPT/Sat May 2 00:36:20 2015
Adaptive Server Enterprise/15.7/EBF 24647 SMP SP134 /P/x86_64/Enterprise Linux/ase157sp133x/3925/64-bit/FBO/Sat May 2 10:31:07 2015
```

Server name:	"ESP"
Specified database:	"ESP"
Specified table owner:	not specified
Specified table:	"USR02"
Specified column:	not specified
Table owner:	"SAPSR3"
Table name:	"USR02"
Statistics for table:	"USR02"
Data page count:	166
Empty data page count:	0
Data row count:	11503.000000000000000000
Forwarded row count:	0.000000000000000000
Deleted row count:	0.000000000000000000
Data page CR count:	30.000000000000000000
OAM + allocation page count:	20
First extent data pages:	0
Data row size:	159.8823785099539236
Parallel join degree:	0.000000000000000000
Unused page count:	71
OAM page count:	1
Derived statistics:	
Data page cluster ratio:	0.9379310344827586
Space utilization:	0.6781171693752609
Large I/O efficiency:	0.9415584415584416
Statistics for index:	"USR02~0" (nonclustered)
Index column list:	"MANDT", "BNAME"
Leaf count:	15
Empty leaf page count:	0

DBCC check in Sybase ASE



A DBCC check should be executed at times when there is a low load on the database, because a DBCC check causes a very high I/O load.

The duration of a DBCC check depends (among other things) to a very large extent on the size of the database and the hardware used.

- **Executing the DBCC check:**

The consistency of the <SID> database is checked using an SQL command in ISQL. To do this, enter the following SQL command into a input text file and save the result as a output text file:

- dbcc checkdb(<SID>)
- dbcc checkalloc(<SID>)

Example:

```
isql -U sapsa -P <Password> -S <SID> -D <SID> -X -i <input text file name> -o <out put text file name>
```




Database → Space → Devices

DBA Cockpit

Switch to SAPGUI Start in Web Browser

System Landscape Database CDV

Performance Space Configuration Jobs Diagnostics Favorites Useful Links

File Systems

Devices

Databases

Tables and Indexes

Databases

Total of 1 Systems

CDV on encsapdevci

Favorites

EXPLAIN Access Plan

SQL Command Line

Refresh Back Forward Help

DB Server: encsapdevci DB Release: 15.7.0.134 Started: 03.06.2015 06:14:38 Uptime: 72 Days Last Refresh: 14.08.2015 08:32:40

Devices

Selection

Device Status: Any

Apply Selection

View: Standard View Print Version Export

Device Number	Name	Physical Device Name	Device Size (MB)	Device Size Used (MB)	Creation Date	Resize Date	Direct I/O enabled	Using dsync	Skip Header
0	tapedump1	/dev/mt0	39	0	2014-03-13 10:00:01		No	No	No
0	master	/sybase/CDV/sybsystem/master.dat	400	320	2014-03-13 10:00:01		No	No	No
0	tapedump2	/dev/mt1	625	0	2014-03-13 10:00:01		No	No	No
1	sysprocsdev	/sybase/CDV/sybsystem/sysprocs.dat	200	200	2014-03-13 10:00:17		Yes	No	No
2	systemtdbdev	/sybase/CDV/sybsystem/sybsysdb.dat	24	24	2014-03-13 10:00:51		Yes	No	No
3	tempdbdev	/sybase/CDV/sybsystem/tempdbdev.dat	1,024	1,024	2014-03-13 10:00:53		No	No	No
4	sybmntdev	/sybase/CDV/sybsystem/sybmntdb.dat	150	148	2014-03-13 10:02:29		Yes	No	No
5	CDV_log_001	/sybase/CDV/saplog/saplog_1/CDV_log_001.dat	38,912	38,912	2014-03-13 10:07:05		Yes	No	No

Fiber Settings



Database → Space → Databases

DBA Cockpit

Switch to SAPGUI Start in Web Browser

System Landscape Database CDV

Performance Space Configuration Jobs Diagnostics Favorites Useful Links

File Systems

Devices

Databases

Tables and Indexes

Databases

Total of 1 Systems

CDV on encsapcdvcl

Refresh Back Forward Help

DB Server: encsapcdvcl DB Release: 15.7.0.134 Started: 03.06.2015 06:14:38 Uptime: 72 Days Last Refresh: 14.08.2015 08:41:12

Databases

View: Standard View Print Version Export Extend DB Space Filter Settings

DBID	Name	Database Owner	Creation Date	Last Log Dump	Database Size (MB)	Unreserved Space (MB)	Free Log Space (MB)	Durability Level	Mixed Data/Log
1	master	sa	2014-03-13 10:00:01	2015-08-08 12:15:20	248	217	217	full	Yes
2	tempdb	sa	2015-06-03 06:14:56	2015-08-14 08:40:40	1,048	1,043	1,019	no_recovery	Yes
3	model	sa	2014-03-13 10:00:01	2015-06-06 12:02:55	24	10	10	full	Yes
4	CDV	sapasa	2014-03-13 10:26:44	2015-08-14 07:00:18	428,032	187,070	38,632	full	No
5	saptools	sapasa	2014-03-13 10:27:04	2015-08-14 08:30:48	3,752	631	203	full	No
6	saptempdb	sa	2015-06-03 06:18:03	2015-08-14 08:40:40	24,576	24,466	24,466	no_recovery	Yes
31.513	sybsystemdb	sa	2014-03-13 10:00:01	2015-06-04 12:16:56	48	34	34	full	Yes
31.514	sybsystemprocs	sa	2014-03-13 10:00:18	2015-06-04 12:17:10	200	70	70	full	Yes
31.515	sybmgtddb	sa	2014-03-13 10:02:30	2015-08-14 08:30:40	148	108	108	full	Yes



Database → Space → Tables

DBA Cockpit

Switch to SAPGUI Start in Web Browser

Last data collection was performed at 2015-08-14 00:00.

View: [Standard View] Print Version Export Table Details Filter Settings													
Database	Table Owner	Table Name	Reserved Total (KB)	Used Total (KB)	Unused Total (KB)	Data Total (KB)	Data Utilized Total (KB)	Number of Rows	Data Change (%)	Data Page Cluster Ratio (%)	Large IO Efficiency (%)	Deleted Rows	Forwarded Rows
CDV	SAPSR3	ZCR_FACTUREN	32.998.902	32.660.102	338.800	32.660.006	32.600.587	1.425.966	3,94	99,99	99,99	0	0
CDV	SAPSR3	SOFFCONT1	21.384.144	21.170.086	214.058	21.170.022	21.162.773	745.917	0,51	99,99	99,99	0	0
CDV	SAPSR3	REPOLOAD	13.906.528	13.591.454	315.074	13.591.390	13.401.791	302.878	7,52	98,83	92,45	2	3
CDV	SAPSR3	DYNPSOURCE	9.537.936	5.519.810	4.018.126	5.519.746	4.894.924	214.325	3,17	95,38	75,58	11	0
CDV	SAPSR3	ZAV_PICUP_UPLOAD	7.954.256	6.488.912	1.465.344	6.488.848	6.016.759	30.039	0,11	99,85	98,99	0	0
CDV	SAPSR3	REPOSRC	7.677.536	7.317.564	359.972	7.317.532	6.520.067	3.760.530	4,80	99,99	99,99	32	51
CDV	SAPSR3	GLPCA	2.880.720	2.880.192	528	2.880.176	2.760.562	12.152.249	0,02	99,95	99,70	0	0
CDV	SAPSR3	RFBLG	2.595.920	2.595.040	880	2.595.008	2.416.303	2.823.343	0,03	99,95	99,66	0	0
CDV	SAPSR3	CDCLS	1.770.536	1.768.872	1.664	1.768.840	1.686.729	5.629.550	1,84	99,99	99,99	1	0
CDV	SAPSR3	BALDAT	1.637.154	1.636.484	670	1.636.452	1.546.145	3.166.290	7,15	99,99	99,99	35.458	1.421
CDV	SAPSR3	COEP	1.631.520	1.630.960	560	1.630.944	1.574.391	8.121.001	0,02	99,94	99,61	0	0
saptools	dbo	DBH_STG_TABLES	1.593.826	1.418.174	175.652	1.418.158	181.290	1.401.447	214,85	98,68	91,55	1.035.617	96
CDV	SAPSR3	SWW_CONT	1.578.656	1.578.208	448	1.578.192	1.484.589	34.793.580	10,61	99,99	99,99	33.844	0
CDV	SAPSR3	DOKCLU	1.492.432	1.492.080	352	1.492.048	1.388.116	2.112.264	0,02	99,94	99,61	0	0
CDV	SAPSR3	SWWCNTP0	1.465.200	1.431.996	33.204	1.431.964	1.320.161	3.012.668	1,35	99,70	98,00	69.305	1.224
CDV	SAPSR3	BSIS	1.404.832	1.404.288	544	1.404.272	1.349.211	7.974.941	0,02	99,94	99,62	12	0
CDV	SAPSR3	SXMSCLUR	1.245.214	1.244.068	1.146	1.244.036	1.256.952	249.470	19,28	99,99	99,99	0	0
CDV	SAPSR3	FAGLFLEXA	1.177.808	1.177.328	480	1.177.312	1.136.512	9.370.896	0,02	99,95	99,67	0	0
CDV	SAPSR3	DYNPLOAD	1.047.440	753.882	293.558	753.850	695.558	59.952	13,59	98,02	87,86	31	0



Database → Configuration → Server Configuration

DBA Cockpit

Switch to SAPGUI Start in Web Browser

Welcome, Akash Wagh

Personalize Logout SQL Error Help SAP

System Landscape Database CDV

Performance Space Configuration Jobs Diagnostics Favorites Useful Links

Server Configuration

Data Caches

ATM Configuration

Data Collection Framework

Databases

(0) (0) (0) (1)

Total of 1 Systems

CDV on encsapcdvci

DB Server: encsapcdvci DB Release: 15.7.0.134 Started: 03.06.2015 06:14:38 Uptime: 72 Days Last Refresh: 14.08.2015 08:53:37

Refresh Back Forward Help

Server Configuration

Change

Configuration Parameter	Run Value	Config Value	Default Value	Memory Used	Unit	Type
number of ccbs	0	0	0	0	number	static
number of devices	200	200	10	0	number	dynamic
number of dbx participants	500	500	500	166	number	dynamic
number of java sockets	0	0	0	0	number	dynamic
number of large io buffers	32	32	6	131270	number	dynamic
number of locks	1200000	1200000	10000	281508	number	dynamic
number of mailboxes	30	30	30	6	number	dynamic
number of messages	64	64	64	6	number	dynamic
number of open databases	12	12	12	6532	number	dynamic
number of open indexes	12000	12000	500	38040	number	dynamic
number of open objects	60000	60000	500	127944	number	dynamic
number of open partitions	15000	15000	500	21335	number	dynamic



Database → Configuration → Automatic Table Maintenance

Welcome, Akash Wagh

Personalize Logout SQL Error Help

SAP

System Landscape Database DEE

Performance Space Backup and Recovery Configuration Jobs Diagnostics

Favorites Useful Links

SAP Configuration Check

Server Configuration

Global Trace Flags / Switches

Data Caches

Resource Limits

Automatic Table Maintenance

Automatic DB Expansion

DBA Cockpit Framework

Systems

(0) (0) (0) (24)

AFM_SLD on nms011

ASR_SLD on nken009

DBI_SLD on nlsap005

Refresh Back Forward Uninstall ATM Help

DB Server: enosapdeeci DB Release: 15.7.0.134 Started: 29.06.2015 07:11:52 Uptime: 46 Days Last Refresh: 14.08.2015 09:10:32

Automatic Table Maintenance

Maintenance Windows Profiles for Automatic Statistics Update Profiles for Automatic Table Reorganization Miscellaneous

View: [Standard View] Print Version Export Create Change Delete Activate / Deactivate Maintenance Window Start

	Description	Start Weekday	Start Time	End Weekday	End Time	Status	Duration (h)	Assigned Profiles	Apply Profiles Repeat...
	24 hours all day (...)	Monday	00:00	Sunday	23:30	Sleeping	167.5	2	<input checked="" type="checkbox"/>
	Weekend (SAP D...	Sunday	02:00	Monday	05:00	Scheduled	27.0	9	<input type="checkbox"/>



Database → Configure → Automatic DB Expansion

System Landscape

Database DEE

Performance

Space

Backup and Recovery

Configuration

Jobs

Diagnostics

Favorites

Useful Links

SAP Configuration Check

Server Configuration

Global Trace Flags / Switches

Data Caches

Resource Limits

Automatic Table Maintenance

Automatic DB Expansion

DBA Cockpit Framework

Systems

(0) (0) (0) (24)

AFM_SLD on nims011

ASR_SLD on nxen009

DBL_SLD on nlsap005

DBW_SLD on encsapdenci

DCU_SLD on encsapdenci

DEE on enosapdeeci

DFM_SLD on nims011

DSM_SLD on nxen006

DSR_SLD on nxen006

Refresh Back Forward Check Help

DB Server: enosapdeeci DB Release: 15.7.0.134 Started: 29.06.2015 07:11:52 Uptime: 46 Days Last Refresh: 14.08.2015 09:15:34

Automatic DB Expansion

Server-Wide Settings

Auto-Expansion is enabled. Disable

Tracing of activities is disabled. Enable

View: [Standard View] Print Version Export Activate / Deactivate Show Growth

Name	Data Total (MB)	Data Free (MB)	Log Total (MB)	Log Free (MB)	Auto Expansion	Last Data Expansion	Last Log Expansion	Default
(default)	0	0	0	0				<input checked="" type="checkbox"/>
DEE	220,160	62,699	18,432	18,358		2015-02-27 04:52:27		<input type="checkbox"/>
master	248	216	216	216				<input checked="" type="checkbox"/>
model	24	10	10	10				<input checked="" type="checkbox"/>
saptempdb	24,576	24,466	24,466	24,466				<input checked="" type="checkbox"/>
saptools	5,000	1,401	204	203		2015-05-15 12:31:16		<input type="checkbox"/>
sybmgmtdb	148	110	110	110				<input checked="" type="checkbox"/>
sybsystemdb	48	33	34	34				<input checked="" type="checkbox"/>



Database → Diagnostics → ATM log

System Landscape

Database DEE

PerformanceSpaceBackup and RecoveryConfigurationJobsDiagnosticsFavoritesUseful Links

Audit LogLock-Wait EventsMissing Tables and IndexesError LogTable StatisticsNonmaterialized ColumnsASE StatusAutomatic Table MaintenanceDBA Cockpit Self-MonitoringAutomatic Table Maintenance

- ATM Queue
- ATM History
- ATM Log

Systems

- AFM_SLD on nims011
- ASR_SLD on nken009
- DBL_SLD on nlsap005
- DBW_SLD on encaapdeci
- ASR_SLD on encaapdeci

RefreshBackForwardHelp

DB Server: enosapdeciDB Release: 15.7.0.134Started: 29.06.2015 07:11:52Uptime: 46 DaysLast Refresh: 14.08.2015 09:24:56

ATM Log

Selection

Time Frame: Last 24 HoursFrom: 13.08.2015 09:25:00To: 14.08.2015 23:59:59Time Zone: UTC+02

Maintenance Window: Any

Message Type: Any

Message Text: *

Apply Selection

View: Standard ViewPrint VersionExport

	Date	Time	Message
[i]	13.08.2015	10:00:10	Building temp. work tables containing open objects or objects that have been touched since 2015-08-13T09:00:11 took 10259ms
[i]	13.08.2015	10:00:10	Number of objects to be evaluated: 2506
[i]	13.08.2015	10:00:11	Determination of metrics used to apply standard profiles took 1014ms
[i]	13.08.2015	10:00:11	Starting to evaluate ATM profile 9
[i]	13.08.2015	10:00:21	Starting to evaluate ATM profile 10
[i]	13.08.2015	10:00:24	Evaluation of ATM profiles assigned to ATM window 1 took 12517ms
[i]	13.08.2015	10:00:24	4 tables / indexes / data partitions where added to the ATM queue or have been updated



Sybase SP patching →

Execution

Before installing a new SP, you must shut down the instance of ASE that is going to be updated.
Logon to the host and execute as syb<sid>

```
As <sid>adm  
stopsap
```

```
Check if the Database is running  
ps -efa | grep -i syb<sid>
```

The ASE server must be offline during the update; otherwise files would be locked throughout the running database processes.

*Download latest ASEUP.tgz and put it into the directory of the Update.
1599814 - SYB: Installing Service Packs for Sybase ASE 15.7 (UNIX+Linux)*

*Updating the ASE software
Attached to the .088 is an archive 'ASEUP.tgz'. It contains a shell script 'ASEup.sh' and a file 'syb_update_db.TXT'.*

+ As syb<sid>

```
Go to <PATCH_DIR>  
cd SP_132  
./ASEup.sh
```



Update ODBC/JDBC drivers for SAP

Update of the ODBC and JDBC drivers

Logon as <sid>adm and execute the following statements.

```
>> cd <PATCH DIR>|  
>> SAPCAR -xvf DBCLIENT.SAR -R /usr/sap/sapmnt/<SID>/global/syb/linuxx86_64
```

I

Check Sybase version

Logon as syb<sid> and execute the following statements.

Select @@sbssav

Select @@version

**Checking ASE instance status :**

\$SYBASE/ASE-15_0/install/showserver

Stopping ASE instance :

Login to isql prompt and execute any one command from below mentioned

Shutdown

Shutdown with nowait

Shutting down backup server :

1> shutdown SYB_BACKUP



```
#### login into the sybase prompt
isql -U<username> -S<server name> -P<password>
e.g. isql -Usa -SGOLD -Psyb123
## To see current DB Name:
Select db_name()
## To see tables in the particular db
Select name from sysobjects where type = 'P'
## To get table information
sp_help table_name
## To get current date
select getdate()
## To take database Backup
dump database test2 to '/opt/sybbackup/test2/dump1.dump'
```



To Create Device

DATA:

```
disk init name = "test2_data",physname = "/opt/sybddata/test2/test2_data.dbf",  
size = '50M'
```

```
disk init name = "testdb_data",physname = "D:\Sybase\database\testdb\testdb_data.dbf",  
size = '50M'
```

LOG:

```
disk init name = "test2_log",physname = "/opt/sybddata/test2/test2.log",  
size = '50M'
```

```
disk init name = "testdb_log",physname = "D:\Sybase\database\testdb\testdb.log",  
size = '50M',dsync = true
```

Create Database

```
Create Database test2 on test2_data = '45M' log on test2_log = '50M'
```

```
Create Database testdb on testdb_data = '50M' log on testdb_log = '50M'
```

To Drop Device

```
sp_dropdevice device_name
```



```
#### database details
sp_helpdb -- for all databases
sp_helpdb <DB name> -- for particular database
#### use command to enter in the particular database
use <database name>
go
#### Device details
sp_helpdevice -- for all devices
sp_helpdevice <device name> -- for particular device

#### To take database backup
dump database <dbname> to <path/dumfile.dump>
#### To restore database backup
load database <dbname> from <path/dumpfile.dump>
#### To make database online
online database <dbname>
```



People matter, results count.

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